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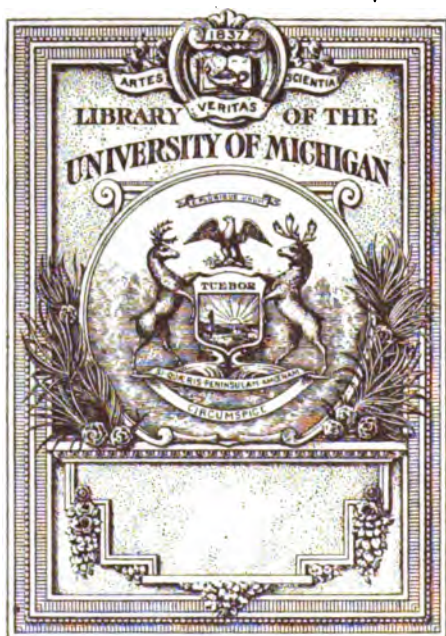
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WAR DEPARTMENT

Annual Reports, 1917

(IN THREE VOLUMES)

Volume I

Reports of

THE SECRETARY OF WAR
THE CHIEF OF STAFF
THE ADJUTANT GENERAL
THE INSPECTOR GENERAL
THE JUDGE ADVOCATE GENERAL
THE QUARTERMASTER GENERAL
THE SURGEON GENERAL
THE CHIEF OF ORDNANCE
THE CHIEF SIGNAL OFFICER
THE CHIEF OF MILITIA BUREAU
THE CHIEF OF COAST ARTILLERY
THE SUPERINTENDENT MILITARY ACADEMY
THE CHICKAMAUGA AND CHATTANOOGA
PARK COMMISSION
THE GETTYSBURG PARK COMMISSION
THE SHILOH PARK COMMISSION
THE VICKSBURG PARK COMMISSION



WASHINGTON
GOVERNMENT PRINTING OFFICE
1918

ARRANGEMENT OF THE ANNUAL REPORTS OF THE WAR DEPARTMENT
FOR THE FISCAL YEAR ENDED JUNE 30, 1917.

Volume I----- Secretary of War.

Chief of Staff.

The Adjutant General.

Inspector General.

Judge Advocate General.

Quartermaster General.

Surgeon General.

Chief of Ordnance.

Chief Signal Officer.

Chief of Militia Bureau.

Chief of Coast Artillery.

Superintendent Military Academy.

Chickamauga and Chattanooga Park Commission.

Gettysburg Park Commission.

Shiloh Park Commission.

Vicksburg Park Commission.

Volume II---- Chief of Engineers (without Appendices).

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Governor of Porto Rico.

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REPORT OF THE SECRETARY OF WAR

REPORT OF THE SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, D. C., November 20, 1917.

To the PRESIDENT:

I have the honor to submit the following report of operations of this Department for the past year:

At the time of my last annual report conditions along the Mexican border growing out of the activities of the bandit Villa remained disturbed. The Regular Army and the National Guard were largely mobilized along the border for defensive operations, and an expeditionary force under Brig. Gen. John J. Pershing had maintained itself on Mexican soil from the month of March, 1916, and was still in Mexico. Subsequent to the date of that report and by reason of our military activity, the irregular and outlawed forces which were disturbing the northern States of Mexico rapidly disintegrated. Gen. Pershing's force, consisting of a highly mobile column far too strong to be attacked with safety, exercised by its mere presence a stabilizing effect in the disturbed territory for great distances beyond its actual base. Villa himself fled from one hiding place to another in the mountains, and there the wounded fugitive cut too poor a figure to attract support; so that his activities and those of other lawless bands in northern Mexico gradually ceased to menace the safety of our border.

In the meantime the Mexican people proceeded to establish more firmly their constitutional government, and the rule of order extended more and more widely throughout the Republic.

Neither Gen. Pershing's force nor the border forces under the general command of Gen. Funston had any serious hostile conflicts, and on the 5th of February, 1917, Gen. Pershing's column was withdrawn from Mexico, having effectively quieted the disturbances which were a constant menace to the life and safety of the people of the United States and which had culminated in the Columbus raid in March of 1916.

Gen. Pershing's force had been in Mexico in all about 11 months. For various reasons the usual modes of supply and transportation were not available to him and he therefore depended upon a motor-train supply operated from the border. The efficiency with which

this supply was organized and maintained was highly creditable, and when the column returned to the United States it came with its own transportation and accompanied by a large part of the civilian population of the neighborhood in which it had been encamped and through which it had afforded an entirely unwonted period of peace, security, and opportunity for industrial and agricultural development. The expedition was in no sense punitive, but rather defensive. Its objective, of course, was the capture of Villa if that could be accomplished, but its real purpose was an extension of the power of the United States into a country disturbed beyond control of the constituted authorities of the Republic of Mexico, as a means of controlling lawless aggregations of bandits and preventing attacks by them across the international frontier. This purpose it fully and finally accomplished.

Shortly after the withdrawal of the expeditionary force, various units of the National Guard were returned to their homes. An adequate force was maintained in Texas, Arizona, and New Mexico to prevent further trouble from scattered bands of outlaws, and the Mexican incident, which had at times seemed to be fraught with possibilities of grave embarrassment in the relations of the two Republics, was happily closed. That such an outcome was possible was in no small degree due to the self-restraint and consideration shown by the officers and soldiers of the American Army, and the relations maintained between our military forces, both on the border and in Mexico, and the civilian population, made it impossible to misjudge the purpose of the Government of the United States, which was, as it was declared to be, solely the protection of our own national interests, uncomplicated by any disposition to interfere in the domestic concerns of the Republic of Mexico.

The Mexican incident was valuable to the United States in two important ways. In the first place, it demonstrated very definitely the determination of the Government not to allow a menace to continue on our frontier; and, in the second place, by the mobilization of the Regular Army and the National Guard, it gave an excellent opportunity for training both to the men in the Guard and to the several supply departments of the Government, and thus afforded a most serviceable foundation upon which to proceed with the larger expansion of the Military Establishment which we were soon called upon to undertake.

THE WAR WITH GERMANY.

On the 6th day of April Congress declared "That the state of war between the United States and the Imperial German Government which had been thrust upon the United States is hereby for-

mally declared." By this declaration and the proclamation of the President pursuant thereto, the United States entered the great conflict which had raged in Europe from August, 1914, as a belligerent power, and began immediately to prepare to defend the rights of the Nation, which for months had been endangered and denied by high-handed and inhuman acts of the German Government both on land and sea. The peaceful ambitions of our people had long postponed our entrance into the conflict; and adherence to a strict neutrality through long months of delicate situations delayed the beginning of active military preparation. At once, however, upon a declaration of a state of war, Congress began the consideration of the measures necessary for the enlargement of the military forces and the coordination of the industrial strength of the Nation. It was understood at the outset that war under modern conditions involved not only larger armies than the United States had ever assembled, but also more far-reaching modifications of our ordinary industrial processes and wider departures from the peace-time activities of the people. The task of the United States was not only immediately to increase its naval and military forces, not only to order the agricultural and industrial life of the Nation to support these enlarged military establishments, but also to bear an increasing financial, industrial, and agricultural burden for the support of those nations which, since 1914, have been in arms against the Imperial German Government and have borne not only the full force of the attack of its great military machine, but also the continuing drain upon their economic resources and their capacity for production which so titanic and long-continued a struggle necessarily entail.

The first response from the country to the act of Congress in declaring a state of war came in the form of offers of services from the people, and for weeks there poured into the War Department an almost bewildering stream of letters and visitors offering service of every kind. Without distinction of age, sex, or occupation, without distinction of geographical location or sectional difference, the people arose with but one thought in their mind, that of tendering themselves, their talents, and their substance for the best use the country could make of them in the emergency. Organizations and associations sprang up over night in thousands of places, inspired by the hope that collective offers and aggregations of strength and facilities might be more readily assimilated by the Government; and benevolent and philanthropic societies began to form for the purpose of taking up as far as might be the vicarious griefs which follow in the train of military operations. There was at the outset some inevitable crossing of purposes and duplication of effort, and perhaps there may have been some disappointment that a more in-

stantaneous use could not be made of all this wealth of willingness and patriotic spirit; but it was a superb and inspiring spectacle. Out of the body of a nation devoted to productive and peaceful pursuits, and evidencing its collective spirit only upon occasions for the settlement of domestic and institutional questions, there arose the figure of a national spirit which had lain dormant until summoned by a national emergency; but which, when it emerged, was seen to embody loyalty to our institutions, unity of purpose, and willingness to sacrifice on the part of our entire people as their underlying and dominant character. Those who believed that the obvious and daily exhibition of power which takes place in an autocracy is necessary for national strength, discovered that a finer, and freer, and greater national strength subsists in a free people, and that the silent processes of democracy, with their normal accent on the freedom of individuals, nevertheless afford springs of collective action and inspiration for self-sacrifice as wide and effective as they are spontaneous. The several Government departments, the Council of National Defense, and other agencies of a more or less formal character subdivided the work of organization. Congress rapidly perfected its legislative program, and in a few weeks very definite direction began to appear in the work of preparation.

THE ENLARGEMENT OF THE ARMY.

The act of May 18, entitled "An act to authorize the President to increase temporarily the Military Establishment of the United States," looked to three sources for the Army which it created:

1. The Regular Army, of which the actual strength on June 30, 1917, was 250,157 men and officers. The provisions of the act, however, contemplated an increase of the Regular Army to 18,033 officers and 470,185 enlisted men, the increase being effected by the immediate call of the increments provided in the National Defense Act of 1916, and the raising of all branches of the service to war strength.

2. The National Guard, reorganized under the National Defense Act, and containing on the 30th of June, 1917, approximately 3,803 officers and 107,320 enlisted men. The National Guard, however, by recruiting of its numbers and the raising of all arms to war strength, contemplated a total of 13,377 officers and 456,800 enlisted men.

3. In addition to this, the act provided for a National Army, raised by the process of selective conscription or draft, of which the President was empowered to summon two units of 500,000 men each at such time as he should determine wise.

On the 3d day of July, 1917, the President by proclamation called into the Federal service and drafted the National Guard of the sev-

eral States and the District of Columbia. And 16 divisional camps were established for their mobilization and training, as follows:

Charlotte, N. C.
Spartanburg, S. C.
Augusta, Ga.
Anniston, Ala.
Greenville, S. C.
Macon, Ga.
Waco, Tex.
Houston, Tex.

Deming, N. Mex.
Fort Sill, Okla.
Fort Worth, Tex.
Montgomery, Ala.
Hattiesburg, Miss.
Alexandria, La.
Buena Vista, Cal.
Palo Alto, Cal.

The principle of voluntary enlistment to fill up the ranks of the Regular Army and the National Guard, and to raise them to war strength was preserved in the act of May 18, 1917, the maximum age for enlistment in both services being fixed at 40 years. Even before the passage of the act, however, very great recruiting activity was shown throughout the country, the total number of enlistments in the Regular Army for the fiscal year 1917 being 160,084. The record of National Guard enlistments has not yet been completely compiled, but the act authorizing a temporary increase in the military establishment provided that any deficiency remaining in either the Regular Army or the National Guard should be made up by selective conscription. The introduction of this new method of enlistment so far affected the whole question of selection for military service that any deductions, either favorable or unfavorable, from the number of voluntary enlistments, would be unwarranted. It is entirely just to say that the States generally showed a most sympathetic spirit of cooperation with the National Government, and the National Guard responded with zeal and enthusiasm to the President's call.

In the preparation of the act providing for the temporary increase in the Military Establishment, very earnest consideration was given by the committees of the two Houses of Congress and by the Department to the principles which would be followed in creating a military establishment under modern conditions adequate for the tremendous emergency facing the Nation. Our own history and experience with the volunteer system afforded little precedent because of the new conditions, and the experience of European nations was neither uniform nor wholly adequate. Our adversary, the German Empire, had for many years followed the practice of universal compulsory military training and service, so that it was a nation of trained soldiers. In France the same situation had existed. In England, on the other hand, the volunteer system had continued, and the British army was relatively a small body. The urgency, however, of the British need at the outbreak of the war, and the unbroken traditions of England, were against even the delay necessary to consider the principle upon which action might best be taken, so that Eng-

land's first effort was reduced to that volunteer system, and her subsequent resort to the draft was made after a long experience in raising vast numbers of men by volunteer enlistment as a result of campaigns of agitation and patriotic appeal. The war in Europe, however, had lasted long enough to make quite clear the character of the contest. It was obviously no such war as had ever before occurred, both in the vast numbers of men necessary to be engaged in strictly military occupations and in the elaborate and far-reaching organization of industrial and civil society of the Nation back of the Army.

Our military legislation was drafted after very earnest consideration, to accomplish the following objects:

1. To provide in successive bodies adequate numbers of men to be trained and used as combatant forces.

2. To select for these armies men of suitable age and strength.

3. To distribute the burden of the military defense of the Nation in the most equitable and democratic manner, and to that end to recognize the universality of the obligation of service.

4. To reserve to the public authorities power so to control the selection of soldiers as to prevent the absorption of men indispensable to agriculture and industry, and to prevent the loss of national strength involved by the acceptance into military service of men whose greatest usefulness is in scientific pursuits or in production.

5. To select, so far as may be, those men for military service whose family and domestic obligations could best bear their separation from home and dependents, and thus to cause the least possible distress among the families of the Nation which are dependent upon the daily earnings of husbands and fathers for their support.

These considerations, shortly stated, amount to a policy which, recognizing the life of the Nation as a whole, and assuming both the obligation and the willingness of the citizen to give the maximum of service, institutes a national process for the expression of our military, industrial, and financial strength, all at their highest, and with the least waste, loss, and distress.

THE SELECTIVE SERVICE LAW.

The act of Congress authorizing the President to increase temporarily the Military Establishment of the United States, approved May 18, 1917, provided for the raising and maintaining by selective draft of increments (in addition to the Regular Army and National Guard) of 500,000 men each, together with recruit training units for the maintenance of such increments at the maximum strength, and the raising, organizing, and maintaining of additional auxiliary

forces, and also for raising and maintaining at their maximum strength, by selective draft when necessary, the Regular Army and the National Guard drafted into the service of the United States.

It also provided that such draft "shall be based upon liability to military service of all male citizens, or male persons not alien enemies, who have declared their intention to become citizens, between the ages of 21 and 30 years, both inclusive"; that the several States, Territories, and the District of Columbia should furnish their proportionate shares or quotas of the citizen soldiery determined in proportion to the population thereof, with certain credits allowed for volunteer enlistments in branches of the service then organized and existing.

The Nation was confronted with the task of constructing, without delay, an organization by which the selection might be made for the entire country by means of a uniform and regulated system.

A suggestion of administration, incomplete because of entirely different conditions, arose from the precedent of the Civil War draft; and on May 22, 1917, the Judge Advocate General was detailed as "Provost Marshal General" and charged with the execution, under the Secretary of War, of so much of the act of May 18 "as relates to the registration and the selective draft." Plans had already been formulated for the operation of the selective draft, and with the formal designation of the Provost Marshal General the work of organization began.

It was obvious that to build up a new Federal organization would require a greater period of time than was afforded by the military necessity. The existing governmental organizations of the several States presented an available substitute, and the statute authorized their use. This expedient was unprecedented, but its practice has abundantly justified its adoption.

The immediate need was for a comprehensive registration of every male of draft age. To effect this registration each State was divided into districts containing a population of approximately 30,000, in each of which a registration board was appointed by the governor. Usually this board consisted of the sheriff, the county health officer, and the county clerk; and where the county's population, exclusive of cities of more than 30,000 inhabitants, exceeded that number, additional registration boards were appointed. Cities of over 30,000 were treated as separate units. The election district was established as the actual unit for registration in order that the normal election machinery might be utilized, and a registrar for every 800 of population in each voting or election precinct was appointed by the registration board. In cities approximating 30,000 of population, the registration board was made up of city officials, and where the popu-

lation exceeded the unit number additional registration boards of three members were appointed, one a licensed physician.

Governors and mayors were given considerable latitude in making geographical divisions of the States and cities for the purpose of defining registration jurisdictions; the only limitation being that approximately 30,000 inhabitants should be included within the confines of a district. The general scheme was that the board of three should exercise supervision over the precinct registrars, the governors supervising the work of the registration boards, while the mayors of cities containing 30,000 or more inhabitants acted as intermediaries between governors and registration boards. Each State was constituted a separate unit and each governor was charged with the execution of the law in his State.

By proclamation of the President, dated May 18, 1917, Tuesday, June 5, 1917, was designated as registration day throughout the United States, with the exception of Alaska, Hawaii, and Porto Rico; and, due to the fact that registration organization of the States had been so quickly and thoroughly completed, about 10,000,000 male citizens of the designated ages were registered on the day set, and the first step in the operation of the selective service law was accomplished.

Registration consisted in entering on a card essential facts necessary to a complete identification of the registrant and a preliminary survey of his domestic and economic circumstances.

It is noteworthy that this registration throughout the entire country was carried out in the main by the voluntary and energetic efforts of citizens, and the Government was thereby saved a very great expense through the efficient organization which had been constructed and furnished with all necessary materials during the short period of sixteen days.

With registration completed there followed the operation of examination, selection, and mobilization. The unit jurisdiction of approximately 30,000 of population was maintained as far as possible, and for each district or division a local board of three members was appointed by the President upon the recommendation of the governor. The board members were residents of the districts they served, and the personnel comprised representative and responsible citizens of the community, including usually a licensed physician. In many cases registration boards were reappointed local boards. Such boards exercised original jurisdiction in all cases except claims for discharge on account of engagement in industry or agriculture.

In every Federal judicial district one or more district boards were organized, consisting usually of five but in some cases of a larger number of members, comprising leading citizens of the community and appointed by the President upon the recommendation of the

governor. District boards exercised appellate jurisdiction over local boards and original jurisdiction in industrial and agricultural claims.

The initial step in the process of examination and selection was to establish the order of liability of each of the 10,000,000 registrants to be called for service. The cards within the jurisdiction of each local board, taken as a unit, had been serially numbered when completed and filed; and duplicates of the cards so numbered were deposited with the governor and with the district boards. The average number of registrants within the jurisdiction of a local board was about 2,500, the highest being 10,319. In order to establish the order of liability of each registrant in relation to the other registrants within the jurisdiction of the same local board, a drawing was held July 20, 1917, in the Public Hearing Room of the Senate Office Building in Washington, as a result of which every registrant was given an order number and his liability to be called for examination and selection determined by the order number.

The official lists of the numbers drawn by lot were furnished to every local board and from these lists the boards made up the availability order list of all registrants within their respective jurisdictions.

The determination of the order of availability left only the process of physical examination and elimination. The War Department, through the Provost Marshal General's Office, had already determined and given notice of the number of men to be furnished by each State, and at the date of the drawing practically every State had ascertained and notified its local boards of the number required to complete their respective quotas for the first draft. The calculations of the War Department and of the States for the quotas were based upon section 2 of the act of May 18.

Immediately upon the completion of the order of call lists, the local boards began to summon for physical examination, beginning with the man who was No. 1 on the list, and continuing in numerical sequence, a sufficient number of registrants to fill their quotas. The average number summoned for the first examination was about twice the number required—i. e., if a board's quota was 105, the first 210 registrants of that jurisdiction were called for physical examination.

The Selective Service Law required certain persons to be exempted from military service, including Federal and State legislative, executive, and judicial officers, ministers of religion, students of divinity, persons in the military or naval service of the United States, and certain aliens. The law further authorized the discharge from draft, under such regulations as the President might prescribe, of county and municipal officers, customhouse clerks and other persons employed by the United States in certain classes of work, pilots and mariners, and, within prescribed limitations, registrants in a status

with respect to persons dependent upon them for support, and persons found physically or morally unfit. Exemption from combatant service only was authorized in the case of persons found to be members of any well-recognized religious sect or organization whose existing creed or principles forbid its members to participate in war in any form, and whose religious convictions are against war or participation therein.

On June 30, 1917, the President promulgated rules and regulations as authorized by the law prescribing the reasons for and manner of granting discharges, and the procedure of local and district boards.

The selective service system required the 4,557 local boards to conduct the physical examination of registrants within their jurisdictions, and to determine and dispose of claims of exemption and discharge in the first instance, excepting industrial and agricultural claims.

The 156 district boards which were established as above stated, proved to be the fulcrum of balance between the local boards and the registrants. In practically every instance their members have been chosen from among the most able and conspicuous representatives of the legal and medical professions, and from the fields of industry, commerce, and labor.

By regulation the case of every person discharged from the operation of the selective service law by a local board on the ground of dependency was automatically taken to the district board for review, the appeal being noted by Government appeal agents appointed by the Provost Marshal General.

Registrants whose claims were disallowed by local boards appealed in large numbers to district boards. Thus was obtained a high degree of uniformity of decisions in dependency cases, which were by far the most difficult of determination and disposition, as well as the most numerous, of the classes of cases throughout the first draft.

Cases involving claims for discharge on agricultural and industrial grounds, of which district boards have original jurisdiction, are appealable to the President, and to date approximately 20,000 of these have been received and indexed, of which about 80 per cent are claims for discharge based on agricultural grounds and 20 per cent on industrial grounds. Of cases already disposed of on appeal from the district boards less than 7 per cent have been reversed. The pending of an appeal to the President does not operate as a stay of induction into military service except where the district board has expressly so directed, and the number of such stays is negligible.

The total cost of the draft can not be estimated accurately at this time, but, based upon the data at hand, the total registration and selection of the first 687,000 men has amounted to an approximate expenditure of \$5,600,000, or about \$8.11 unit cost.

The unprecedented character of this undertaking is a matter of common knowledge. Congress, in the consideration of the act which authorized it, entertained grave doubts as to whether a plan could be devised which would apply so new a principle of selection for national service without much misunderstanding and unhappiness. But the results have been of a most inspiring kind and have demonstrated the universal willingness of our people to serve in the defense of our liberties and to commit the selection of the Nation's defenders to the Nation itself. The men selected have reported to the camps and are in course of training. They constitute as fine a body of raw material as were ever trained in military science. They are already acquiring the smartness and soldierly bearing characteristic of American troops, and those who once thought that the volunteer spirit was necessary to insure contentment and zeal in soldiers now freely admit that the men selected under this act have these qualities in high degree and that it proceeds out of a patriotic willingness on the part of the men to bear their part of the national burden and to do their duty at the Nation's call.

The success of this great undertaking is, of course, primarily due to the painstaking forethought and the statesmanlike breadth of view with which the Provost Marshal General and his associates organized the machinery for its execution. But other elements have contributed to its success, and first among these was the determination to rely upon the cooperation of the governors of States and State agencies in the assembling of the registration and exemption boards. By reason of this association of State and local agencies with the National Government the law came as no outside mandate enforced by soldiers, but as a working of the home institutions in the hands of neighbors and acquaintances pursuing a clear process of selection, and resulting in a gift by the States to the Nation of a body of men to be trained. The press of the country cooperated in a most helpful way, drawing the obvious distinctions between this mode of selection and those punitive drafts which have sometimes been resorted to after the failure of volunteering, and pointing out to the young men of the country that the changed conditions of warfare made necessary a mode of selection which would preserve the industrial life of the Nation as a foundation for successful military operations. Indeed, the country seemed generally to have caught enough of the lessons of the European war to have realized the necessity of this procedure, and from the very beginning criticism was silenced and doubt answered by the obvious wisdom of the law. Moreover, the unquestioned fairness of the arrangements, the absence of all power of substitution, the fact that the processes of the law were worked out publicly, all cooperated to surround the draft with assurances of fairness and equality, so that throughout the whole country the atti-

tude of the people toward the law was one of approval and confidence, and I feel very sure that those who at the beginning had any doubts would now with one accord agree that the selective service act provides not only a necessary mode of selecting the great armies needed under modern conditions, but that it provides a better and more democratic and a fairer method of distributing the burden of national defense than any other system as yet suggested.

This does not mean, of course, that the law is perfect either in its language or in its execution, nor does it mean that improvements may not be made as our experience grows and as the need for more intense national efforts increases; but such amendments as may hereafter be required will proceed with the fundamental questions settled, and we have now only to consider changes which may be required to a better ordering of our military strength and a more efficient maintenance of our industrial and agricultural life during the stress of war. The passage and execution of this law may be regarded as a milestone in our progress toward self-consciousness and national strength. Its acceptance shows the unity of spirit of our people, and its operation shows that a democracy has in its institutions the concentrated energy necessary to great national activities however much they may be scattered and dispersed, in the interest of the preservation of individual liberty, in time of peace.

The problem presented involved not merely the selection of forces to be trained into armies but officers to do the training. By the provisions of the national defense act of June 3, 1916, Officers' Reserve Corps had been authorized. Rules and regulations for their organization were promulgated in July, 1916, and amended in March, 1917. Immediately upon the passage of the act, the building up of lists of reserve officers in the various sections of the Military Establishment was undertaken, with the result that at the end of the fiscal year some of the branches of the service had substantial lists of men available for duty in the event of call. The largest number of commissions were issued in the technical services, for which professional non-military training was the principal requisite. The largest reserve corps was that in the Medical Department, in which more than 12,000 physicians were commissioned. The expansion of these technical services proceeded easily upon the basis of the reserve corps beginning, but the number of applicants for commissions in the strictly military or combatant branches of the service was relatively small. They consisted of men who had had military experience either in the Regular Army or the National Guard, and men who were graduates of schools and colleges affording military training, and of the training camps which for several years had been maintained at Plattsburg and throughout the country. Their number, however, was wholly inadequate, and their experience, while it had afforded the elements

of military discipline, had not been such as was plainly required to train men for participation in the European war with its changed methods and conditions. The virtue of the law authorizing the Officers' Reserve Corps, however, became instantly apparent upon the declaration of war, as it enabled the department to establish officers' training camps for the rapid production of officers.

TRAINING CAMPS.

Accepting the Plattsburg experiment as the basis and using funds appropriated by Congress for an enlargement of the Plattsburg system of training, the department established a series of training camps, sixteen in number, which were opened on the 15th of May, 1917. The camps were scattered throughout the United States so as to afford the opportunity of entrance and training with the least inconvenience and expense of travel to prepare throughout the entire country. Officers previously commissioned in the reserve corps were required to attend the camps, and, in addition, approximately 30,000 selected candidates were accepted from among the much greater number who applied for admission. These camps were organized and conducted under the supervision of department commanders; applicants were required to state their qualifications and a rough apportionment was attempted among the candidates to the several States. At the conclusion of the camp, 27,341 officers were commissioned and directed to report at the places selected for the training of the new army. By this process, we supplied not only the officers needed for the National Army but filled the roster of the Regular Army, to which substantial additions were necessary by reason of the addition of the full number of increments provided by the National Defense Act of 1916.

The results of the first series of camps were most satisfactory and, anticipating the calling of further increments of the National Army, a second series of camps was authorized, to begin August 27, 1917, under rules for the selection of candidates and their apportionment throughout the country which were much more searching and embodied those improvements which are always possible in the light of experience. Approximately 20,000 candidates are now attending this second series of camps, and those found qualified will shortly be commissioned and absorbed into the Army for the performance of the expanding volume of duties which the progress of preparation daily brings about. It is to be remembered that the need for officers exists not only in connection with the actual training of troops in camp and the leadership of troops in the field, but a vast number of officers must constantly be employed in staff duties, and great numbers must as constantly be engaged in military research and in spe-

cialized forms of training associated with the use of newly developed arms and appliances. In other words, we must maintain not merely the special-service schools which are required to perfect the training of officers in the special arms of the service, but we must constantly experiment with new devices and reduce to practical use the discoveries of science and the new applications of mechanical and scientific arts, both for offensive and defensive purposes. It would be out of place here to enumerate or describe in any detail the service of science in this war, but when the history of the struggle comes to be written it will be found that the masters of the chemical and physical sciences have thrown their talents and their ingenuity into the service, that their researches have been at the very basis of military progress, and that the victory rests as much upon a nation's supremacy in the researches and adaptations of science as it does upon the number and valor of its soldiers. Indeed, this is but one of the many evidences of the fact that modern war engages all of the resources of nations and that that nation will emerge victorious which has most completely used and coordinated all the intellectual, moral, and physical forces of its people.

It would be a national loss for me to fail to record in this place a just estimate of the value to the Nation of these training camps for officers. They disclosed an unsuspected source of military strength. Nobody will suppose that, with the growing intricacy of military science and the industrial arts related to it, a country can dispense with trained professional soldiers. The fundamentals of military discipline remain substantially unchanged and, in order that we may assemble rapidly and effectively adequate military forces, there must always be in the country a body of men to whom the life of a soldier is a career and who have acquired from their youth those qualities which have, from the beginning, distinguished the graduates of the Military Academy at West Point: the disciplined honor, the unflinching courage, the comprehension of sacrifice, and that knowing obedience which proceeds from constant demonstrations of the fact that effective cooperation in war requires instant compliance with the command of authority, the sort of obedience which knows that a battle field is no place for a parliament. Added to these mental and moral qualities, the body of professional soldiers must devote themselves unremittingly to the development of the arts of war, and when the emergency arises must be familiar with the uses of science and the applications of industry in military enterprise. But these training camps have taught us that, given this relatively small body of professional soldiers, the Nation has at hand an apparently inexhaustible body of splendid material which can be rapidly made to supplement the professional soldier.

When the first camp was opened, the colleges, military schools, and high schools of the country poured out a stream of young men whose minds had been trained in the classroom and whose bodies had been made supple and virile on the athletic field. They came with intelligence, energy, and enthusiasm and, under a course of intensive training, rapidly took on the added discipline and capacities necessary to equip them for the duties of officers. They have taken their places in the training camps and are daily demonstrating the value of their education and the adaptability of the spirit of American youth. A more salutary result would be impossible to imagine. The trained professional soldiers of the Army received this great body of youthful enthusiasm and capacity with hospitality and quickly impressed upon it a soldierly character. The young men brought to their training habits which they had formed for success as civilians, but which their patriotic enthusiasm rendered easily available in new lines of endeavor for the service of the country. They brought, too, another element of great value. They were assembled from all parts of the country; they were accustomed to the democracy of the college and high school; they recognized themselves as new and temporary adventurers in a military life; and they, therefore, reflected into our military preparation the fresh and invigorating atmosphere of our industrial and commercial democracy. This has undoubtedly contributed to the establishment of a happy spirit which prevails throughout the Army and has made it easy for the young men chosen under the selective service act to fall in with the training and mode of life which the military training camp requires. An effort was made by the department as far as possible to assign these young officers to the training of troops assembled from their own homes. By this means, a preexisting sympathy was used, and admiration and respect between officer and man was transferred from the home to the camp.

ONE ARMY.

The three divisions of the Army, namely, the Regular Army, the National Guard, and the National Army, were very different organizations as we contemplated them at the time of the passage of the act for the temporary increase of the Military Establishment. The Regular Army was a veteran establishment of professional soldiers; the National Guard a volunteer organization of local origin maintained primarily for the preservation of domestic order in the several States, with an emergency duty toward the national defense; the National Army an unknown quantity, made up of men to be selected arbitrarily by tests and rules as yet to be formulated, unorganized, untrained, existing only in theory and, therefore, problematical as

to its spirit and the length of time necessary to fit it for use. Congress, however, most wisely provided as far as possible for an elimination of these differences. Enlistments in the Regular Army and National Guard were authorized to be made for the period of the war rather than for fixed terms; the maximum and minimum ages of enlistment in the Regular Army and National Guard were assimilated; the rights and privileges of members of the three forces were made largely identical. Indeed, the act created but one army, selected by three processes. The wisdom of Congress in this course became instantly apparent. Spirited young men throughout the country began at once to enlist in the Regular Army and National Guard who might have been deterred from such enlistment had their obligation been for a fixed period rather than for the duration of the war. Many men asked themselves but one question: "By which avenue of service will I earliest get to France?" The men in the National Army soon caught this spirit and, while the department is endeavoring to preserve as far as possible in the National Guard and the National Army those intimacies which belong to men who come from the same city or town, and to preserve the honorable traditions of military organizations which have histories of service to the country in other wars, the fact still remains that the army is rapidly becoming the army of the United States, with the sense of origin from a particular State, or association with a particular neighborhood, more and more submerged by the rising sense of national service and national identity.

PROMOTIONS.

Promotions in the Regular Army in time of peace have proceeded upon the basis of seniority, restrained by periodical examinations and tests of fitness for service. Whether or not this is the best rule for the peace-time establishment need not here be considered. It is obviously not adapted to a great military establishment in a time of war. If a vacancy in the rank of captain were to occur in France it would plainly not be possible to fill it by bringing in the senior lieutenant of the Army, who at the time might be in the Philippine Islands. Practical limitations make such a course impossible. But other considerations are equally powerful. A division forms a composite unit. It has a spirit of its own which is understood by its members; its relations run to a common commander; the unit is small enough to afford accurate opportunities for estimating relative merit. The department has, therefore, established a system of divisional promotion. Such a system does not, however, integrate perfectly with the preparation of officers in training camps for which the membership is selected from civil life. A third series of training

camps has, therefore, been announced to begin in January, 1918, to be held at the divisional camps of the Army and to be attended by men for the most part selected from the ranks of the enlisted men in the division. By this process, the training camps will start with men who have had the elements of military discipline in the ranks. The candidates will, moreover, have been chosen by the practical tests of actually observed experience rather than on the basis of theoretical qualifications, and the whole Army will be stimulated by the opportunity thus afforded to men in the ranks to qualify for commissions by fidelity, intelligence, and zeal in their ordinary occupation as soldiers. Succeeding officers' training camps will in all likelihood follow in the main the plan laid down for the third series, with such modifications as may seem wise from time to time to bring into training some part of the large body of men yet remaining in the country who have had military experience but who for one reason or another could not be received in the first two series of camps.

CANTONMENTS.

I have described above the process of the execution of the selective service law. The preparation of places for the training of the recruits thus brought into the service was a task of unparalleled magnitude. On the 7th of May, 1917, the commanding generals of the several departments were directed to select sites for the construction of cantonments for the training of the mobilized National Guard and the National Army. The original intention was the construction of 32 cantonments. The appropriations made by Congress for this purpose were soon seen to be insufficient, and further study of the problem seemed to show that it would be unwise so seriously to engage the resources of the country, particularly in view of the fact that the National Guard was ready to be mobilized, that its training by reason of service on the Mexican border was substantial, and that its early use abroad in conjunction with the Regular Army would render permanent camps less important. The number was, therefore, cut to 16 divisional cantonments, and the National Guard was mobilized in camps for the most part under canvas, with only certain divisional storehouses and quarters for special uses constructed of wood. Because of the open weather during the winter months, the National Guard camps were located in the southern States. The National Army cantonments were located within the lines of the military division. A special division of the Quartermaster General's Department was established, known as the emergency construction division, and to it was given the task of erecting the cantonment buildings and such buildings as should be necessary for the National Guard.

On May 17, 1917, Col. I. W. Littell, of the Regular Army, was detailed to assemble and direct an organization to be known as the cantonment division of the Quartermaster Corps, whose duties were to consist of providing quarters and camps for the training and housing of the New National Army, which was to be selected by conscription as provided in the act of Congress dated May 18, 1917.

Able assistance was rendered by the following members of the committee on emergency construction and contracts, a subcommittee of the Munitions Board of the Council of National Defense:

Maj. W. A. Starrett, chairman;

Maj. William Kelly,

C. M. Lundoff,

M. C. Tuttle,

F. L. Olmsted,

J. B. Talmadge, secretary.

Inquiries were immediately made and all available means used by telegraph, correspondence, and consultation to get in touch with the ablest constructors, engineers, draftsmen, purchasing agents, and other specialists of broad experience in their respective vocations from which an efficient and experienced organization could be selected.

All of those selected who became attached to the organization in an official capacity gave up responsible and remunerative positions to give the Government the benefit of their services. They all being over the draft-age limit and representative technical men of repute and standing in their community, a splendid precedent of patriotism was established.

The assembling of an organization and the planning and execution of the work was undertaken with a view of accomplishing all that human ingenuity, engineering, and constructing skill could devise in the brief time available.

Plans were formulated by engineers, architects, and town planners who had given much thought to the particular problems involved. Camp sites comprising from 2,000 to 11,000 acres each were selected by a board of Army officers under the direction of the department commanders. Names of responsible contracting firms were secured and every effort made to perfect an organization competent to carry out the work of completing the camps at the earliest possible moment. The magnitude of assembling an organization for carrying on the work and securing the labor and materials therefor can in some measure be realized by reference to Table A, showing quantities of the principal materials estimated to be used in the construction of the National Army cantonments.

TABLE A.—*Approximate quantities of principal materials used in the construction of the various National Army camps.*

[Does not include National Guard, embarkation, or training camps.]		Quantity.
Lumber (feet b. m.)	-----	450,000,000
Roofing paper (square feet)	-----	78,000,000
Doors	-----	140,000
Window sash	-----	700,000
Wall board (square feet)	-----	29,500,000
Shower heads	-----	40,000
Water-closet bowls	-----	54,000
Tank heaters and tanks	-----	11,000
Heating boilers	-----	1,800
Radiation (square feet)	-----	4,200,000
Cannon stoves	-----	20,000
Room heaters	-----	20,000
Kitchen stoves and ranges	-----	10,000
Wood pipe for water supply (feet)	-----	1,000,000
Cast-iron supply pipe (feet)	-----	470,000
Wire, all kinds and sizes (miles)	-----	5,500
Wood tanks (aggregate capacity)	-----	8,300,000
Hose carts	-----	800
Fire engines	-----	80
Fire extinguishers	-----	4,700
Fire hose (feet)	-----	392,500
Fire hydrants	-----	3,600
Hand-pump tanks	-----	12,700
Fire pails	-----	163,000
Cots	-----	721,000

NATIONAL ARMY CONTRACTS.

As shown in the following Table B the camp sites for the National Army were all selected during the month of June, contracts were executed within a few days after the selection of the sites, and the various contractors had their work in progress within a few days after the awarding of the contracts. It is obvious that where the dates the work started are given as prior to the execution of the contract, that, to avoid all unnecessary delay, the terms of the contract were agreed to between the representative of the Government and the contractors before the contracts were formally executed.

A form of contract was suggested by the emergency building committee of the Council of National Defense before the plans and general character of the buildings and other structure were adopted. It was the aim of the council to utilize live and well-established organizations rather than build up new, and that a system should be adopted for contracting and compensating construction work and services such as would not cripple or destroy existing organizations.

TABLE B.—*Dates National Army camp sites were approved, contracts were executed, and work was started.*

	Camp.	Dates camp sites were approved.	Date contracts were executed.	Date work started.
American Lake, Wash.....	Camp Lewis.....	May 31	June 15	June 14
Annapolis Junction, Md.....	Camp Meade.....	June 22	June 23	July 12
Atlanta, Ga.....	Camp Gordon.....	June 2	June 11	June 18
Ayer, Mass.....	Camp Devens.....	May 31	do.....	June 13
Battle Creek, Mich.....	Camp Custer.....	June 11	June 19	June 19
Chillicothe, Ohio.....	Camp Sherman.....	June 21	June 21	July 6
Columbia, S. C.....	Camp Jackson.....	June 2	June 11	June 15
Des Moines, Iowa.....	Camp Dodge.....	June 27	June 22	June 19
Fort Riley, Kans.....	Camp Funston.....	June 13	June 20	
Fort Sam Houston, Tex.....	Camp Travis.....	June 11	do.....	June 14
Little Rock, Ark.....	Camp Pike.....	do.....	June 23	June 17
Louisville, Ky.....	Camp Taylor.....	do.....	June 20	June 22
Petersburg, Va.....	Camp Lee.....	June 8	June 18	June 20
Rockford, Ill.....	Camp Grant.....	June 21	June 21	June 24
Wrightstown, N. J.....	Camp Dix.....	June 2	June 14	June 12
Yaphank, L. I.....	Camp Upton.....	June 18	June 23	June 21

The following table is the exact wording of that portion of the contracts on cantonments which relate to the compensation to be paid the contractor.

TABLE C.

Determination of fee.—As full compensation for the services of the contractor, including profit and all general overhead expenses, except as herein specified, the contracting officer shall pay to the contractor in the manner hereinafter prescribed a fee to be determined at the time of completion of the work from the following schedule, except as hereinafter otherwise provided:

If the cost of the work is under \$100,000 a fee of 10 per cent of such cost.

If the cost of the work is over \$100,000 and under \$125,000 a fee of \$10,000.

If the cost of the work is over \$125,000 and under \$250,000 a fee of 8 per cent of such cost.

If the cost of the work is over \$250,000 and under \$266,666.67 a fee of \$20,000.

If the cost of the work is over \$266,666.67 and under \$500,000 a fee of 7½ per cent of such cost.

If the cost of the work is over \$500,000 and under \$533,714.29 a fee of \$37,500.00.

If the cost of the work is over \$533,714.29 and under \$3,000,000 a fee of 7 per cent of such cost.

If the cost of the work is over \$3,000,000 and under \$3,500,000 a fee of \$210,000.

If the cost of the work is over \$3,500,000 a fee of 6 per cent of such cost.

The cost of materials purchased or furnished by the contracting officer for said work, exclusive of all freight charges thereon, shall be included in the cost of the work for the purpose of reckoning such fee to the contractor, but for no other purpose.

The total fee to the contractor hereunder shall in no event exceed the sum of \$250,000, anything in this agreement to the contrary notwithstanding.

The estimated average cost of work performed by the contractor on the National Army camps is approximately \$8,000,000. The maximum compensation the contractor could receive on this expenditure is \$250,000. This sum stated in percentage of the total cost of the work will average about 3 per cent on the work done by the contractors.

NATIONAL ARMY CAMPS.

Sixteen National Army camps were constructed in various parts of the United States at points selected by the War Department. The camps were carefully laid out by experienced town planners and engineers to give best results considering all viewpoints.

A typical cantonment city will house 40,000 men. Each barrack building will house 150 men and provide 500 cubic feet of air space per man. Such a cantonment complete contains between 1,000 and 1,200 buildings and covers about 2,000 acres. In addition, each cantonment has a rifle range, drill, parade, and maneuver grounds of about 2,000 acres. In many cases all or a large part of the entire site had to be cleared of woods and stumps. The various military units were located on principal or primary roads—a regiment being treated as a primary unit. About 25 miles of roads were constructed at each cantonment, and sewers, water supply, lighting facilities, and other improvements installed.

An infantry regiment requires 22 barrack buildings, 6 for officers' quarters, 2 storehouses, 1 infirmary building, 28 lavatories, with hot and cold shower baths, or a total of 59 buildings. In addition to the buildings necessary for the regimental units, each cantonment has buildings for divisional headquarters, quartermaster depots, laundry receiving and distributing stations, base hospitals having 1,000 beds, post exchanges, and other buildings for general use.

At several of the cantonments remount stations have been provided, some of them having a capacity to maintain 12,000 horses.

NATIONAL GUARD CAMPS.

In addition to the National Army camps, plans were made for the construction of 16 National Guard, two embarkation and one quartermaster training camp, but the construction of these items did not involve so large an expenditure as the National Army camps, as provision was made for fewer units and only tentage quarters for the men in the National Guard camps was provided. Modern storehouses, kitchens, mess shelters, lavatories, shower baths, base hospitals, and remount depots were built, and water, sewerage, heating, and light systems installed at an expenditure of about \$1,900,000 for each camp.

WATER SYSTEM.

Water supply depends upon the locality. Where possible, connections were made with municipal or privately owned pipe mains. Where these supplies were not obtainable, wells were dug or water pumped from streams. In such cases, where water was not considered sufficiently pure for drinking purposes, chlorinating apparatus was installed; in others filtration and, in still others, both chlorination and filtration.

ELECTRIC LIGHTING AND POWER.

The necessary electrical energy is obtained from large central station systems, owned privately, or by municipalities. In most cases a substation consisting of a bank of primary transformers and the distributing lines have been constructed on the camp sites.

PLUMBING.

Lavatories are constructed according to the size of the organizations to be served. For infantry companies there were provided 12 closet combinations consisting of a vitreous bowl, wood seat without cover, and vitreous low-down tank, 10 shower heads, 18 feet of urinal trough, and 22 feet of lavatory trough with drain board, the lavatory trough being provided with a total of 11 faucets. A 560-gallon hot-water storage tank was installed, together with a tank heater of an assumed capacity to raise the water in the tank 100° F. in six hours.

COOKING.

Each organization has a separate kitchen and mess room. This means a total of about 350 kitchens for each average cantonment. Ranges were purchased from various manufacturers, those most nearly approaching to the specification of the standard army range being given the preference. This range has a cooking top 53 inches long by 33 inches wide and an oven 28 inches wide by 22 inches deep. Two of these ranges were provided for each company of 250 men. A total of about 9,000 ranges for the 16 National Army cantonments were purchased.

HEATING.

Both steam-heating plants and stoves and furnaces have been employed for heating cantonment buildings. Some of the more important factors which had to be considered in deciding upon the proper methods of heating were as follows:

1. General desirability.
2. Fire risk involved.

3. First cost.
4. Cost of operation.
5. Time required for obtaining materials.
6. Quantity and quality of labor necessary.
7. Time required for installing.

It was finally decided that, with the exception of four cantonments which were located where very severe winter climate is encountered, stoves and furnaces would be used for all heating in barracks.

Central steam-heating plants are provided at the four cantonments referred to above, one for each Infantry and each Artillery regiment, the size of boiler plants provided in each case ranging from 350 to 600 horsepower.

Steam distribution lines in general run overhead on poles, in order to reduce time required for installation and first cost to a minimum.

For central steam heating plants at the various cantonments a total of 265-150 horsepower horizontal tubular boilers were furnished, while for officers' quarters and medical dispensary, exclusive of base hospital buildings, a total of 1,700 cast-iron boilers are furnished.

A total of over 100,000 radiators, containing in the aggregate over 4,000,000 square feet of heating surface, are required, together with a total approximating 3,000,000 feet of pipe.

In buildings provided with stoves and furnaces for heating, two types are used. The first, known as the room heater, is similar to the ordinary basement hot-air furnace, except that it is located in the apartment to be heated, the casing being open at top and bottom. This type of heater is suitable for dormitories or other rooms where it is desirable to reduce the direct radiant heat to a minimum and to provide for a uniform distribution of warm air throughout the room. For lavatory buildings and other buildings where heat is necessary to prevent freezing, and for halls of the larger buildings, small mess rooms, etc., ordinary cast-iron coal burning heaters are provided. For the 16 National Army cantonments a total of nearly 40,000 stoves are provided, together with approximately 1,000,000 feet of stovepipe.

SEWER SYSTEM.

All of the National Army cantonments are provided with complete water carriage sewerage systems. The sewers are generally constructed of vitrified clay sewer pipes, but in a few instances the outfall sewers, sizes 2 feet or over in diameter, are constructed of concrete.

At four of the cantonments the method of disposal is the dilution. The sewage is discharged directly into a river or the ocean. At two cantonments the sewage is discharged into a city system. Special

sewage treatment works have been installed at all of the other cantonments.

LAUNDRIES.

At some of the cantonments, the Government erected and equipped laundry plants. At others, private concerns erected laundries by permission, the price for the work being controlled by the Government. In some instances, contracts were made with a group of laundries at Government prices.

HOSPITALS.

Each regiment has its own medical dispensary building, which is really a miniature hospital with a capacity of about 20 beds and fully equipped with instruments and surgical supplies. In addition, most of the 32 cantonments and camps have a very complete base hospital of the capacity of 1,000 beds, and the remainder have hospitals with a capacity of 500 beds. A 1,000-bed hospital contains a total of 60 buildings, spaced at least 40 feet apart as a matter of fire protection, but connected together with glass-inclosed and covered corridors.

These include an administration building, a thoroughly modern operating building, an eye, nose, and throat building, receiving ward, ordinary wards, and the required number of isolation and other special wards. The base hospital also includes, entirely separate, a central steam heating plant and an especially equipped hospital laundry.

The base hospital buildings are quite complete and have all modern improvements, including special electric wiring and electric cooking, warming, and sterilizing appliances.

ROADS.

Road building where sites were located on rough land, and in some cases forests, was a large feature. Approximately 25 miles of roads had to be built at each cantonment.

FIRE PROTECTION AND PREVENTION.

Fire protection was provided by separating buildings, establishing fire breaks, using prepared roofing, prescribing regulations for ranges, heaters, and electrical installations. Sixteen streams of water from hydrants can be concentrated on any large barrack building. Automobile fire engines, fire extinguishers, hose carts, water barrels, and pails are supplied. Fire hose are located in different parts of the cantonment.

With the advent of the United States into the war, there has appeared not only one of the world's greatest builders, but the world's

greatest customer for supplies and human necessities. We have not only to equip, house, and supply our own army, but meet the demands arising from the drainage of the resources of the entente allies. Small shopping and bargaining are out of the question. Enormous savings were, however, effected, due to the fact that materials were purchased in large quantities and consequently at a much reduced price. Standardization of sizes saved from \$5 to \$6 per thousand feet b. m. on lumber, and a further saving of from \$3 to \$11 over prevailing prices was effected by the lumber subcommittee of the Council of National Defense. The Raw Materials Committee effected similar savings in prepared roofing, nails, and other construction materials. The lead subcommittee procured 500 tons of lead for caulking pipe at 3 cents less than market price. When it is considered that this construction work is, next to the Panama Canal, the largest ever undertaken by the United States, the country is to be congratulated on having available the men and materials to accomplish the feat of providing for the maintenance of the newly organized army in so short a period.

OTHER BUILDING.

I have described at length the work of building necessary for the National Army camps, but at the same time extensive building was necessary at the 16 sites selected for the mobilization and training of the National Guard. While the National Guard troops were themselves quartered under canvas, many wooden buildings and storehouses had to be constructed for their use and, of course, the important problems of water supply, sewage, and hospital accommodations required substantially as much provision upon these subjects as upon those selected for the National Army.

At the very outset of this hurried and vast program, it became apparent that labor would have to be assembled from great distances, and in wholly unaccustomed numbers, that the laboring men would be required to separate themselves from home and family and to live under unusual and less comfortable circumstances than was their habit. It was also clear that no interruption or stoppage of the work could be permitted. I therefore took up with Mr. Samuel Gompers, President of the American Federation of Labor, the question of a general agreement which would cover all trades to be employed in assuring continuity of work, provide just conditions of pay, recognize the inequalities which exist throughout the country, and yet avoid controversy as between the contractor and his employees, which, wherever the justice of the dispute might lie, could have only a prejudicial effect upon the interests of the Government, by delaying the progress necessary to be made. Mr. Gompers and those asso-

ciated with him in the building trades promptly and loyally entered into a consideration of the whole subject, with the result that the following agreement was made:

WASHINGTON, D. C., *June 19, 1917.*

For the adjustment and control of wages, hours, and conditions of labor in the construction of cantonments, there shall be created an adjustment commission of three persons, appointed by the Secretary of War; one to represent the Army, one the public, and one labor; the last to be nominated by Samuel Gompers, member of the Advisory Commission of the Council of National Defense, and President of the American Federation of Labor.

As basic standards with reference to each cantonment, such commission shall use the main scales of wages, hours, and conditions in force on June 1, 1917, in the locality where such cantonment is situated. Consideration shall be given to special circumstances, if any, arising after said date which may require particular advances in wages or changes in other standards. Adjustments of wages, hours, or conditions made by such board are to be treated as binding by all parties.

The contractors throughout the country were notified of the existence of this agreement and of the determination of the Government to carry it out faithfully. The scope of the agreement was subsequently enlarged so as to include other emergency construction done by the War Department, and a board of adjustment was appointed which, at the beginning, consisted of Gen. E. A. Garlington, formerly General Inspector of the Army, Mr. Walter Lippmann, and Mr. John R. Alpine, to whom all complaints were referred, and by whom all investigations and determinations in enforcement of the agreement were made. The personnel of this board was subsequently changed, and its activities associated with a similar board appointed by the concurrent action of the Secretary of the Navy and Mr. Gompers, but I need here refer only to the fact that, by the device of this agreement, and through the instrumentality of this board, labor difficulties and disputes were easily adjusted, and the program of building has gone rapidly forward, with here and there incidental delays due sometimes to delay in material, sometimes to difficulties of the site, and doubtless to other incidental failures of coordination, but in the main, the work has been thoroughly successful. When its magnitude is appreciated, the draft it made upon the labor market of the country, the speed with which it was accomplished, and the necessity of assembling not only materials but men from practically all over the country, it seems not too much to say that the work is out of all proportion larger than any similar work ever undertaken in the country, and that its completion substantially on time, is an evidence of efficiency both on the part of those officers of the Government charged with responsibility for the task and the contractors and men of the trades and crafts employed to carry on the work.

This work involved the expenditure of vast sums of public money. It required the selection of contractors who had had experience in great construction undertakings, but required also a constant supervision and a very elaborate system of accounting and checking. In order to perfect all these agencies the War Department availed itself of the services of many citizens and associations which had special experience and skill in the matters involved. It would be invidious to undertake to enumerate some, without mentioning all of those who thus brought ready and loyal service to the aid of the department. The full account of their work will appear at large in the report of the Quartermaster General, and especially in the chapter devoted to the emergency construction bureau. The work would have been impossible without the cooperation of the committees of the Council of National Defense, which coordinated the supply and the transportation of the necessary materials, and aided the Quartermaster General's Department at every point in the solution of the business and industrial questions presented.

THE COMMISSION ON TRAINING CAMP ACTIVITIES.

The selection of the men to constitute an army, the provision of officers to train them, the construction of camps and cantonments for their mobilization, have been described, but from the very beginning it was realized that this army ought to have all the advantages with which the best thought of the country has sought to surround the life of its young men, and that we had no right to neglect provision for wholesome leisure-hour occupations nor to allow the surroundings of these great encampments to be less stimulating and less worthy than our social conscience now requires in the normal city and village life of the country. The substitution of the city playground, with its regulated and healthy activities, for the back lot and city street, is now thoroughly understood in America, and in recent years the cities have come regularly to set out in their budgets of expenditure provision for athletic opportunities and wholesome amusements as the best possible means of combating the evil tendencies of the congestion of city life.

Our military camps are each to have a population of from thirty to forty-five thousand young men. They are, in other words, cities. The simplicity of their purpose, the singleness of occupation and uniformity of age and condition make a comparatively simple problem. That problem can be shortly stated as follows: Here we have 30,000 young men, the greater part of whose days are given to strenuous and exhilarating physical discipline. Their hours of relaxation are to be provided for, in order that idleness, weariness, homesickness, and monotony may not prejudicially affect their spirit

and their lives. What resources shall we use to accomplish this purpose? Fortunately we have not only the analogy of modern city activities in recreation and social service, but we have the analogy of the American college, which is a smaller but similar community, presenting the inclinations and habits of groups of men of a somewhat similar age, and already there exist agencies, like the Young Men's Christian Association, which have for years dealt with this phase of the life of men, and were ready to be transplanted into the service of the Army. Indeed, in this regard, our experience shows that the desire of the country to be of service was so general that we were more likely to be embarrassed by a multitude of expedients than to lack for sympathy and cooperation. At the very outset, therefore, the department created a Commission on Training Camp Activities, and through it undertook to coordinate all the agencies, which could be brought together to work for the great object in hand.

The War Department Commission on Training Camp Activities was appointed in April, 1917. The members, in addition to the chairman, Raymond B. Fosdick, of New York, are Lee F. Hanmer, of New York; Thomas J. Howells, of Pittsburgh; Marc Klaw, of New York; Joseph Lee, of Boston; Malcolm L. McBride, of Cleveland; Dr. John R. Mott, of New York; Charles P. Neill, of Washington; Col. Palmer E. Pierce, United States Army; and Dr. Joseph E. Raycroft, of Princeton University. Jasper J. Mayer is secretary to the commission. To supply the normalities of life to nearly a million and a half young men in training camps, and to keep the environs of those camps clean and wholesome, is the twofold task outlined for the commission.

When one considers that these men in camp have left their families, home and friends, their clubs, churches and college gatherings, their dances, their town libraries, athletic fields, theaters and movie houses—in fact all the normal social relationships to which they have been accustomed—and have entered a strange new life in which everything is necessarily subordinated to the need of creating an efficient fighting force, the importance of the commission's work becomes apparent. An army in fighting trim is a contented army; contentment, for the average man, can not be maintained without the normal relations of life.

The task of this commission, therefore, is to reestablish, as far as possible, the old social ties—to furnish these young men a substitute for the recreational and relaxational opportunities to which they have been accustomed. In brief, to rationalize, as far as it can be done, the bewildering environments of a war camp. It is also for the commission to prevent and suppress certain vicious conditions traditionally associated with armies and training camps.

To a great extent the commission has employed in these two important activities the machinery of organizations and agencies heretofore interested along such lines. Except where necessary, it has not created any new machinery.

To the Young Men's Christian Association and the Knights of Columbus, for instance, the commission has looked to supply a large share of the club life and entertainment inside the training camps. To the American Library Association it has instinctively turned for an adequate supply of books and reading facilities for the troops. To organize the social and recreational life of the communities adjacent to the training camps, the commission enlisted the services of the Playground and Recreational Association of America, which has placed representatives in over 100 such communities and has harnessed the lodges, churches, clubs, and other local groups and organizations with the men in the camps. So, too, such agencies as the Travelers' Aid Society and the Young Women's Christian Association have been brought into play in connection with the community problem.

Suppressive work in dealing with vicious conditions is handled by the military police of the camps, who are doing admirable work, and by direct representatives of the commission, with whom are cooperating such organizations as the Committee of Fourteen of New York, the Committee of Fifteen of Chicago, the Bureau of Social Hygiene of New York, and the American Social Hygiene Association. Local police organizations and sheriffs, as well as the machinery of the Department of Justice, have also been utilized in this work. The special problem arising from the presence of young girls in the vicinity of the camps is handled by the Young Women's Christian Association and by a committee on protective work attached to the commission.

Within the camps, in addition to the facilities already mentioned, the commission has appointed sports directors, boxing instructors, song leaders, and dramatic entertainment managers. Theaters are being erected in each cantonment for the exhibition of regular dramatic performances, and special facilities have been provided for the production of moving pictures, vaudeville, and other forms of amusement. Divisional exchange officers, appointed by the commission, one in each camp, are superintending the operation of the regimental post exchanges, or soldiers' cooperative stores.

This constitutes a brief résumé of the machinery by which the commission is accomplishing its work. To meet its expenses, Congress has made an appropriation. The size of its task is evidenced by the fact that its activities have to do with all classes of camps and cantonments under the jurisdiction of the War Department. Some of these camps contain as many as 50,000 men, and the problem of

arranging and ordering their leisure time opportunities must be promptly and effectively met.

This brief description of the committee and its work could with profit be greatly expanded. The splendid activities of the Young Men's Christian Association, the Knights of Columbus, the Young Women's Christian Association, the Masonic and other fraternal orders, the resources of the churches and the services of the social workers and experts in recreation and entertainment, have all been coordinated to surround the life of our soldiers with opportunity and diversion.

These plans have had this thought in mind: That this military service to the country, interrupting as it does the careers and activities of so many of our men, must be made an asset to them and to the Nation by leaving them, when it is over, not merely with strengthened and more virile bodies as a result of their physical training, but with serene and contented minds, and with that elevation which comes from the sense of having lived a full life and been in touch with opportunities for the wholesome and invigorating use of all of one's powers, both about his serious business and his moments of relaxation.

The effect of these activities upon the country at large has, I believe, been most fortunate. By virtue of the powers conferred by Congress in sections 12 and 13 of the act temporarily to increase the Military Establishment, zones have been established around the training camps, and through the cooperation of the Department of Justice vice and the opportunity for intemperance, which has sometimes been associated with the idea of a military camp, have been reduced to a minimum; but I frankly count most upon the constructive agencies which have been employed. The significant thing about a true civilization is its spontaneous upward tendency and the young American instinctively prefers sound and healthy occupations and recreations, if the opportunity to enjoy them be but offered. As a consequence, the whole-hearted hospitality of the civilian communities about our camps has been reciprocated by our young soldiers, and happy relations have been created which have given the people of the country fresh occasion for admiration of their Army and have given our soldiers new inspirations to fight in the defense of institutions which have surrounded the soldier's career with so many opportunities and so many evidences of interest.

The real effect of this will be a spirit in the American soldier when he is on foreign soil, a set of habits and associations, a group of ideals brought with him from home, which will be at once a spur to his efforts and a consolation for his hardships.

AVIATION.

On the 3d of March, 1915, Congress authorized the creation of the National Advisory Committee for Aeronautics. Upon this committee were representatives of the Treasury, War, Navy, Agriculture, and Commerce Departments, and the Smithsonian Institution.

Prior to the outbreak of the European war military experiments in the air service were tentative and small. Our own experience on the Mexican border showed the art of flying in its infancy. At that time we had not in this country an adequate supply of airplanes for reconnaissance purposes upon a very limited scale, nor were our manufacturers equipped to turn out rapidly reliable scouting machines. Developments in aviation have gone on with the utmost rapidity and air craft are now used not only for these purposes, but for combat and each day seems to bring fresh results from the ingenuity and research which is being applied to the problem of air navigation. Under the conditions of warfare on the western front in Europe, supremacy in the air entails supremacy on the land. Realizing this, the Council of National Defense, on the 16th day of May, 1917, established the Aircraft Production Board, which immediately worked out a special air program, and on the 24th of July Congress made the necessary provision for its execution by the passage of a special measure authorizing great expenditures and the creation of a special personnel. Prior to 1916 the largest sum expended for Army aviation was \$300,000. In the latter year, however, a special urgent deficiency appropriation of \$500,000 was made, and in the year 1917 appropriations aggregating substantially \$700,000,000 were made for the development of the Army's air war activities.

The report of the Chief Signal Officer, which accompanies this, is necessarily reserved in its discussion of details; but it contains the outlines of a romance, the story of a new development of subtle adaptations and of the fine capacity of our people to seize a new and infant art, make themselves masters of it, and work out its mechanical development under the spur of the country's need for patriotic service. We are dealing here with instruments which for military reasons can not be described, and with activities which can not prudently now be detailed; but the standardization of planes, engines, and parts to facilitate quantity production, the development of the Liberty Motor, and the generous cooperation of scientists, engineers, and manufacturers to speed and perfect these devices, will be recognized as performances which justify the confidence of the Congress in providing so generously for this most important military development.

THE ENGINEER DEPARTMENT.

This great division of the War Department in times of peace devotes the major part of its energy to works of internal improvements and to the supervision of, improvement, and maintenance of navigable waters; but in time of war it immediately becomes a fundamental part of the Military Establishment. It was, therefore, called upon not only to render assistance of an engineering kind in the establishment of training camps, but had to establish camps for the rapid training in military engineering of large additions to its own personnel, and to undertake the rapid mobilization and training of additional engineer troops, of which at the beginning of the war there were but two regiments.

One of the earliest opportunities for actual assistance to the countries associated with us in this war was presented to this department. In the war against Germany transportation, and particularly railroad transportation, is of the utmost importance. It was easily foreseen that our own army in France would require large railroad facilities both in the operation of permanent railroads for the handling of our equipment and supplies and in the construction and operation of temporary roads behind our Army. In the meantime regiments of engineer troops, if speedily organized and dispatched to Europe, could both render valuable assistance to the British and French Armies and acquire the training and experience which would make them valuable at a later stage to us. Accordingly nine such regiments were organized and have for some months been rendering active and important service along the actual battle front. In addition to these, a tenth regiment, composed of men skilled in forestry and lumbering, was organized and sent abroad, and is now operating in a foreign forest cutting out lumber supplies for the use of our associates and ourselves.

Concurrently with the formation of these special engineer troops the department undertook the collection of material for the establishment and operation of our own lines of supply abroad. The railways of France have been maintained in a state of high efficiency by the French people, and they are performing the tremendous transportation task imposed upon them by the French and English military operations with complete success; but in order not to impose a burden which they were not designed to meet, by asking them to expand to the accommodation of our services, it has been found necessary for us ourselves to undertake the accumulation of railroad material for our own use in the theater of war. This work is on a large and comprehensive scale. Any detailed description of it would be inappropriate at this time, but it involves the creation of entire transportation systems and the actual construction and operation of

railroads with the elaborate terminal facilities needed for the rapid unloading and dispatch of supplies, equipment, and troops.

In my annual report of last year I pointed out the inadequacy of the engineer school maintained at the Washington Barracks and expressed the hope that the intention of Congress could at some suitable time be called to the wisdom of providing facilities for original research and continuous and fundamental training for our body of engineers. The experience of this war emphasizes the suggestion then made. The engineer is the bridge over which discoveries of science pass into the practical uses of everyday life. There should, therefore, be a school for Army engineers which would keep constantly engaged upon research and as constantly engaged in devising modes and appliances for the application of scientific discoveries in military matters. In the present war, as doubtless in all wars, the inventive faculty is aroused to unwonted activity; not only do our own scientists and inventors produce discoveries and inventions which can be adapted to immediate military use, but our adversaries are likewise fertile and appear on the battle field with new agencies and appliances which must be met defensively and surpassed offensively. These observations, of course, are equally applicable to the work of the Ordnance Department, and beginnings have been made in that department at the proving ground which will doubtless some day result in ordnance schools of a higher kind which will continue the practical education received by the young ordnance officer in his tour through the arsenals and proving grounds, and will select out for special duty men endowed with research ability and special inventive skill.

The Engineer School has, however, already a fair start and by relatively small appropriations it could be expanded into a great scientific agency, valuable to the country in times of peace and of the highest value under the stress of war. I beg leave, however, to urge that when Congress does address itself to this problem its plans be conceived in a broad and generous spirit. The education system of the Army, beginning with the Military Academy at West Point and following through the service school and the War College, should be rounded up by the construction of a scientific institution with laboratory facilities and experimental resources, to which the Regular Army officers could have recourse for the final training of their special talents. It should be an institution working in the closest cooperation with the great educational institutions of the country and so officered that the military value of the great research output of civilian educational and scientific laboratories would be constantly discovered and made available. In the present war the laboratories and facilities of the colleges and universities of the country have been placed at the disposal of the Government. The Bureau of Stand-

ards, under the generous direction of the Secretary of Commerce, has placed its services unreservedly at the disposal of the technical branches of the Army, and by this cooperation the department has been able to effect many standardizations and the simplification of many processes of great value both in quantity production and in speed of output.

This sort of cooperation, of course, can always be relied upon, but the purpose of a great military scientific school is wider than this. Savages fight with bludgeons; civilized men with their wits. A civilized country should, therefore, keep its wits so ordered as to be able rapidly to use them to the greatest advantage, and so long as it is necessary for our country to maintain a military establishment as a protection against the sudden and unavoidable emergency of war, the counsels of prudence and forethought bid us take such steps as will enable us to afford surprises to our enemy, rather than to lag inquiringly and defensively behind the surprises which he prepares for us. Nothing is more striking in the present war than its development and applications of science. The submarine and airplane are the most spectacular scientific novelties, but there are many others. Instruments of extreme delicacy, applying old principles in new ways, and familiar devices put to unfamiliar uses all count for success in military operations and strengthen both the offensive and defensive values of arms in the field.

It may well be that such a scientific or engineer school as I am here suggesting should be conceived as a part of the plan for a wider reorganization of the system of military education, but in the midst of war and the instant activities which it entails it would not be seasonable to ask attention to the details of such a system, nor can we see clearly what those details ought to be in view of the fact that this experience has caused a widespread interest in military training as an adjunct to the ordinary curriculum of colleges and scientific and technical schools, and it may therefore well be that when we have advanced out of the present struggle the essential associations of science in supreme national emergencies will so far have been realized as to make of civilian academic and scientific educational enterprises the natural laboratories for military study, leaving only the highly specialized research and coordination of invention and discovery to be performed in a distinctively national and higher military school.

UNIVERSAL MILITARY TRAINING.

The subject of universal military training continues to be discussed in the country. The department has not sought and does not now seek legislation on the subject, chiefly for the reason that the formu-

lation of a permanent military policy will inevitably be affected by the arrangements consequent upon the termination of the present war. Civilized men must hope that the future has in store a relief from the burden of armament and the destruction and waste of war. However vain that hope may appear in the midst of the most devastating and destructive war in the history of the race, it persists—perhaps because we are encouraged by the analagous substitution of courts for force in the settlement of private controversies; perhaps because all the perfections of nature teach us that they are the product of processes which have eliminated waste and substituted constructive for destructive principles. When a permanent military policy, therefore, comes to be adopted, it will doubtless be conceived in a spirit which will be adequate to preserve against any possible attack those vital principles of liberty upon which democratic institutions are based, and yet be so restrained as in no event to foster the growth of mere militarist ambitions or to excite the apprehension of nations with whom it is our first desire to live in harmonious and just accord.

NITROGEN FIXATION.

I have from time to time reported the steps taken under the direction of the President in the study of processes of nitrogen fixation and the development of the plants authorized by the national defense act. In view of the fact that our need for explosives during the war is instantly and enormously increased, these steps have been expedited and the plans originally deemed most advisable have in the emergency been much modified. A detailed account of the projects at present under way would be inexpedient; but substantial progress has been made along the line intended by Congress at the time its authorization was made, and the whole project has been so interwoven with our emergency military preparations that possibilities in this field then deemed remote are now under active construction. The department has not allowed itself to overlook the fact that Congress intended that our nitrogen fixation process should be adaptable to the uses of agriculture in times of peace, and the steps taken have kept that purpose constantly in view.

SUPPLIES.

The report of the Quartermaster General and the statistical exhibits of the several supply departments give the details of the work which has been undertaken to supply the Army, both here and overseas. The problem has been serious. For the small Regular Army of the United States a well-defined and adequate supply system had been created. It was large enough and flexible enough to

permit us to make gradual accumulations of reserve as Congress from time to time provided the necessary money; but when the mobilization of the National Guard on the Mexican frontier took place, such reserves as we had were rapidly consumed, and the maintenance of the military establishment on the border required an increase which quite equaled the entire capacity of those industries ordinarily devoting themselves to the production of military supplies. When the present enlarged military establishment was authorized it involved an enlarged Regular Army, an enlarged National Guard and the new National Army, thus bringing upon us the problem of immediate supply with adequate reserves for an Army of 2,000,000 men; and these men were not to be stationed about in Army posts, but mobilized into great camps under conditions which necessarily increased the wear and tear upon clothing and equipment, and correspondingly increased the reserves needed to keep up the supply. In addition to this these troops were assembled for overseas use, and it therefore became necessary to accumulate in France vast stores of clothing and equipment in order to have the Army free from dependence, by too narrow a margin, upon ocean transportation with its inevitable delays. As a consequence the supply needs of the department were vastly greater than the capacity of the industrial organization and facilities normally devoted to their production, and the problem presented was to divert workshops and factories from their peace-time output into the intensive production of clothing and equipment for the Army. Due consideration had to be given to the maintenance of the industrial balance of the country. Industries already devoted to the manufacture of supplies for the nations associated with us in the war had to be conserved to that useful purpose. Perhaps some aid to the imagination can be gotten from the fact that 2,000,000 men constitute about one-fiftieth of the entire population of the United States. Supply departments were, therefore, called upon to provide clothing, equipment, and maintenance for about one-fiftieth of our entire people, and this in articles of uniform and of standardized kinds. The great appropriations made by Congress tell the story from the financial point of view. In 1917 the normal appropriation for the Quartermaster Department was \$186,305,000. The emergency appropriation for this department for the year 1918 was \$3,000,000,000; a sum greater than the normal annual appropriation for the entire expenses of the Federal Government on all accounts. Another illustration can be drawn from the mere numbers of some familiar articles. Thus of shoes more than 20,000,000 pairs have already been purchased and are in process of delivery; of blankets, 17,000,000; of flannel shirting, more than 33,000,000 yards, of melton cloth, more than 50,000,000 yards; of various kinds of duck for

shelter tents and other necessary uses, more than 125,000,000 yards; and other staple and useful articles of Army equipment have been needed in proportion.

To all of this it has been necessary to add supplies not usual in our Army which, in many cases, had to be devised to meet needs growing out of the nature of the present warfare. It was necessary, therefore, to mobilize the resources and industry, first to produce with the greatest rapidity the initial equipment, and to follow that with a steady stream of production for replacement and reserve; second, to organize adequate transportation and storage for these great accumulations, and their distribution throughout the country, and then to establish ports of embarkation for men and supplies, assemble there in orderly fashion for prompt ship-loading the tonnage for overseas; and to set up in France facilities necessary to receive and distribute these efficiently.

The Quartermaster General's Department was called upon to set up rapidly a business greater than that carried on by the most thoroughly organized and efficiently managed industrial organization in the country. It had to consider the supply of raw materials, the diversion of industry, and speed of production, and with its problem pressing for instant solution it had to expand the slender peace-time organization of the Quartermaster Department by the rapid addition of personnel and by the employment and coordination of great civilian agencies which could be helpful.

The Council of National Defense, through the supply committees organized by it, afforded the immediate contact necessary with the world of commerce and industry, while men of various branches of business and production engineers brought their services freely to the assistance of the Department. The dollar-a-year man has been a powerful aid, and when this struggle is over, and the country undertakes to take stock of the assets which it found ready to be used in the mobilization of its powers, a large place will justly be given to these men who, without the distinction of title or rank, and with no thought of compensation, brought experience, knowledge, and trained ability to Washington in order that they might serve with patriotic fervor in an inconspicuous and self-sacrificing, but indispensably helpful way.

The problems of supply are not yet solved; but they are in the course of solution. Sound beginnings have been made, and as the military effort of the country grows the arrangements perfected and organizations created will expand to meet it.

In this general connection it seems appropriate to refer to the effective cooperation between the department and the transportation agencies of the country. For a number of years the Quartermaster General's Department has maintained close relations with the

executives of the great railway systems of the country. In February, 1917, a special committee of the American Railway Association was appointed to deal with questions of national defense, and the cooperation between this committee and the department has been most cordial and effective, and but for some such arrangement the great transportation problem would have been insoluble. I am happy, therefore, to join the Quartermaster General in pointing out the extraordinary service rendered by the transportation agencies of the country, and I concur also in his statement that "of those who are now serving the Nation in this time of stress, there are none who are doing so more whole-heartedly, unselfishly, and efficiently than the railroad officials who are engaged in this patriotic work."

One other aspect of the work of the Quartermaster General's Office has engaged my particular attention, and seems to me to have been fruitful of most excellent results. The garment working trades of the United States are largely composed of women and children, and of men of foreign extraction. More than any other industry in the United States it has been menaced by the sweatshop system. The States have enacted codes and established inspection agencies to enforce sanitary conditions for these workers, and to relieve the evils which seem everywhere to spring up about them. To some extent the factory system operated under rigid inspection has replaced home work, and has improved conditions; but garment making is an industry midway in its course of being removed from the home to the factory, and under pressure of intensive production, home work in congested tenements has been difficult to eradicate.

The vice of this system is not merely the invasion of the home of the worker, and the consequent enfeeblement of the family and family life. Work done under such circumstances escapes the inspector, and the crowded workers in the tenement are helpless in their struggle for subsistence under conditions which are unrelieved by an assertion of the Government's interest in the condition under which these workers live. Moreover, wide distribution of garments made under such conditions tends to spread disease, and adds another menace from the public point of view.

The department determined, therefore, to establish minimum standards as to wages, inspection, hours, and sanitation. These standards were inserted in the contracts made for garment production, and a board was appointed to enforce an observance of these standards. The effect of this has been that it is now possible to say that no uniform worn by an American soldier is the product of sweatshop toil, and that so far as the Government is concerned in its purchases of garments it is a model employer.

This action has not delayed the accumulation of necessary supplies, and it has added to our national self-respect. It has dis-

tributed national interest between the soldier who wears and the worker who makes the garment, regarding them each as assets, each as elements in our aggregated national strength.

ORDNANCE.

On the 1st day of July, 1916, there was a total of 96 officers in the Ordnance Department. The commissioned strength of this department increased substantially 2,700 per cent, and is still expanding. The appropriations for ordnance in 1917 were \$89,697,000; for 1918, in view of the war emergency, the appropriations for that department aggregate \$3,209,000,000.

This division of the War Department has had, in some respects, the most difficult of the problems presented by the transition from peace to war. Like the Department of the Quartermaster General, the Ordnance Department has had to deal with various increases of supply, increases far exceeding the organization and available capacity of the country for production. The products needed take longer to produce; for the most part they involved intricate machinery, and highly refined processes of manufacture. In addition to this the industrial agencies of the country have been devoting a large part of their capacity to foreign production which, in the new set of circumstances, it is unwise to interrupt.

The report of the Chief of Ordnance sets forth as far as is prudent at this time the activities of his department. I refer to them here chiefly for the purpose of directing attention again to the valuable service rendered to the Government not only by the trained personnel of the Regular Army, which has devoted itself with unflagging energy to the preparation of the Nation to meet the emergency, but also of the civilians who have grouped themselves around the Ordnance Department, and brought to it the indispensable experience which they had gained in private industrial pursuits.

COUNCIL OF NATIONAL DEFENSE.

In my last annual report I referred to the legislation enacted as a part of the National Defense Act which provided for the creation of a Council of National Defense. Shortly thereafter the council was organized, its advisory commission appointed, a director chosen, and its activities planned. It appropriately directed its first attention to the industrial situation of the country and, by the creation of committees representative of the principal industries, brought together a great store of information both as to our capacity for manufacture and as to the readaptations possible in an emergency for rapid production of supplies of military value. Under the law of its creation, the Council of National Defense is not an executive

body, its principal function being to supervise and direct investigations and make recommendations to the President and the heads of the executive departments with regard to a large variety of subjects. The advisory commission is thus advisory to a body which is itself advisory, and the subordinate bodies authorized to be created are collectors of data upon which advice can be formulated. There was no intention on the part of Congress to subdivide the executive function, but rather to strengthen it by equipping it with carefully matured recommendations based upon adequate surveys of conditions. The extent of the council's powers has been sometimes misunderstood, with the result that it has been deemed an inapt instrument, and from time to time suggestions have been made looking to the donation to it of power to execute its conclusions. Whatever determination Congress may hereafter reach with regard to the bestowal of additional executive power and the creation of agencies for its exercise, the advisory function of the Council of National Defense ought not to be impaired, nor ought its usefulness to be left unrecognized. In the first place, the council brings together the heads of the departments ordinarily concerned in the industrial and commercial problems which affect the national defense and undoubtedly prevents duplications of work and overlappings of jurisdiction. It also makes available for the special problems of individual departments the results attained in other departments which have been called upon to examine the same problem from other points of view. In the second place, the council supplements the activities of the Cabinet under the direction of the President by bringing together in a committee, as it were, members of the Cabinet for the consideration of problems which, when maturely studied, can be presented for the President's judgment.

With the declaration of a state of war, however, the usefulness of the Council of National Defense became instantly more obvious. The peace-time activities and interests of our people throughout the country surged toward Washington in an effort to assimilate themselves into the new scheme of things which, it was recognized, would call for widespread changes of occupation and interest. The Council of National Defense was the only national agency at all equipped to receive and direct this aroused spirit seeking appropriate modes of action, and it was admirably adapted to the task because among the members of the council were those Cabinet officers whose normal activities brought them into constant contact with all the varied peace-time activities of the people and who were, therefore, best qualified to judge the most useful opportunities in the new state of things for men and interests of which they respectively knew the normal relations. For the more specialized problems of the national defense, notably those dealing with the production of war materials, the coun-

cil authorized the organization of subordinate bodies of experts, and the General Munitions Board grew naturally out of the necessities of the War and Navy Departments, which required not only the maximum production of existing munition-making industries in the country, but the creation of new capacity for production and its correlation with similar needs on the part of the foreign governments. The work done by the General Munitions Board was highly effective, but it was soon seen that its problem carried over into the field of transportation, that it was bound up with the question of priorities, and that it was itself divisible into the great and separate fields of raw material supply and the production of finished goods. With the growth of its necessary interests and the constant discovery of new relations it became necessary so to reorganize the General Munitions Board as both to enlarge its view and more definitely recognize its widespread relations.

Upon the advice of the Council of National Defense, the General Munitions Board was replaced by the War Industries Board, which consists of a chairman, a representative of the Army, a representative of the Navy, a representative of labor and the three members of the Allied Purchasing Commission through whom, under arrangements made with foreign Governments by the Secretary of the Treasury, the purchasing of allied goods in the United States is effected. This purchasing commission consists of three chairmen—one of priorities, one of raw materials, and one of finished products. By the presence of Army and Navy representatives, the needs of our own Government are brought to the common council table of the War Industries Board. The board is thus enabled to know all the war needs of our own Government and the nations associated with us in war, to measure their effect upon the industry of the country, to assign relative priorities in the order of serviceableness to the common cause, and to forecast both the supply of raw material and our capacity for completing its manufacture in such a way as to coordinate our entire industrial capacity, both with a view to its maximum efficiency and to its permanent effect upon the industrial condition of the country. Under legislation enacted by Congress, the President has committed certain definite problems to special agencies. The food administration, the fuel administration, and the shipping problem being each in the hands of experts specially selected under appropriate enactments. In large part, these activities are separable from the general questions considered by the Council of National Defense and the War Industries Board, but there are necessary relations between them which it has been found quite simple to arrange by conference and consultation, and the Council of National Defense, with the Secretary of the Treasury added as an important councilor,

has seemed the natural center around which to group these agencies so far as any common activity among them is desirable.

In the meantime the Advisory Commission of the Council of National Defense and the council itself have continued to perform the original advisory functions committed to them by the National Defense Act. The War Department is glad to acknowledge its debt to the council and the commission. I refrain from specific enumeration of the services which the department has received through these agencies only because their number is infinite and their value obvious. The various supply committees created by the Supply Commission, the scientific resources placed at the disposal of the department, the organization of the medical profession, the cooperation of the transportation interests of the country, the splendid harmony which has been established in the field of labor, are all fruits of the actions of these bodies and notably of the Advisory Commission. It has been especially in connection with the activities of the council and the commission that we have been helped by the unremunerated service of citizens who bore no official relation to the Government but had expert knowledge of and long experience with the industries of the country which it was necessary rapidly to summon into new uses. Through their influence, the trade rivalries and commercial competitions, stimulating and helpful in times of peace, have been subordinated to the paramount purpose of national service and the common good. They have not only created helpful relations for the present emergency but have established a new confidence in the Government on the part of business and perhaps have led to clearer judgments on the part of the Government in its dealings with the great organizations, both of labor and of capital, which form the industrial and commercial fabric of our society. The large temporary gain thus manifest is supplemented by permanent good; and in the reorganizations which take place when the war is over there will doubtless be a more conscious national purpose in business and a more conscious helpfulness toward business on the part of the Government.

VISITING WAR MISSIONS.

After the entrance of the United States into the war, missions of a diplomatic and military character from the great belligerent countries at war with Germany visited the United States. Upon each of them men of military distinction and soldiers of prominence came to bring us the benefit of the experience of their respective armies in the war. They were accompanied by experts in the various branches of military science, and the exchange of opinion between them and members of our own Army was most helpful in formulating the plans for our own military preparation and participation. It is perhaps not invidious to record the special pleasure with which

the War Department and the Army of the United States welcomed Marshal Joffre, the hero of the Battle of the Marne, and Lieut. Gen. G. T. M. Bridges of the British Army, both veterans of many great conflicts and each representative of armies whose sufferings and whose triumphs have challenged both the sympathy and the admiration of the world.

THE AMERICAN EXPEDITIONARY FORCE.

As a result of the exchanges of views which took place between the military missions to the United States and our own Government, it was determined to begin at once the dispatch of an expeditionary force of the American Army to France. This has been done. Gen. John J. Pershing was selected as commander in chief and with his staff departed for France, to be followed shortly by the full division, consisting entirely of Regular Army troops. Immediately thereafter there was formed the so-called Rainbow Division, made up of National Guard units of many States scattered widely throughout the country. The purpose of its organization was to distribute the honor of early participation in the war over a wide area and thus to satisfy in some part the eagerness of these State forces to be permitted to serve in Europe. The Marines, with their fine traditions and honorable history, were likewise recognized, and regiments of Marines were added to the first forces dispatched. It would, of course, be unwise to attempt any enumeration of the forces at this time overseas, but the Army and the country would not have me do less than express their admiration and appreciation of the splendid cooperation of the Navy, by means of which these expeditionary forces have been safely transported and have been enabled to traverse without loss the so-called danger zone infested by the stealthy and destructive submarine navy of the enemy. The organization and dispatch of the expeditionary force required the preparation of an elaborate transport system, involving not only the procurement of ships and their refitting for service as troop and cargo transports, but also extensive organizations of terminal facilities both in this country and France; and in order to surround the expeditionary force with every safeguard, a large surplus of supplies of every kind were immediately placed at their disposal in France. This placed an added burden upon the supply divisions of the department and explains in part some of the shortages, notably those of clothing, which have temporarily embarrassed mobilization of troops at home, embarrassments now happily passed. In the organization of this transport the constant and helpful cooperation of the Shipping Board, the railroads, and those in control of warehousing, wharfing, lighterage, and other terminal facilities has been invaluable. Our activities in this re-

gand have resulted in the transporting of an army to France fully equipped, with adequate reserves of equipment and subsistence, and with those large quantities of transportation appliances, motor vehicles, railroad construction supplies, and animals, all of which are necessary for the maintenance and effective operations of the force.

The act authorizing the temporary increase of the military establishment empowered the department to create special organizations of technical troops. Under this provision railroad and stevedore regiments have been formed and special organizations of repair men and mechanics, some of which have proceeded to France and rendered service back of the British and French line in anticipation of and training for their later service with the American Army. No complete descriptions of these activities can be permitted at this time, but the purpose of the department has been to provide from the first for the maintenance of our own military operations without adding to the burdens already borne by the British and French, and to render, incidentally, such assistance to the British and French Armies as could be rendered by technical troops in training in the theater of operations. By this means the United States has already rendered service of great value to the common cause, these technical troops having actually carried on operations for which they are designed in effective cooperation with the British and French Armies behind hotly contested battle fronts.

MEDICAL DEPARTMENT.

The report of the Surgeon General exhibits in detail the tremendous activities of his department. Working in close association with the medical committee of the Council of National Defense and the Red Cross, and in constant and helpful contact with the medical activities of the British, French, and other belligerents, the Surgeon General has built up the personnel of his department and taken over from the Red Cross completely organized base-hospital units and ambulance units, supplemented them by fresh organizations, procured great quantities of medical supplies and prepared on a generous scale to meet any demands of our Army in action. Incidentally and in the course of this preparation, great numbers of base hospital organizations, ambulance units, and additional doctors and nurses have been placed at the disposal of the British and French armies, and are now in the field of actual war, ministering to the needs of our Allies. Indeed, the honor of first participation by Americans in this war belongs to the Medical Department. In addition to all this preparation and activity, the Surgeon General's department has been charged with the responsibility for the study of defense against gas attack and the preparation of such gas masks and other appli-

ances as can be devised to minimize its effects. The medical profession of the country has rallied around this service. The special laboratories of the great medical institutions have devoted themselves to the study of problems of military medicine. New, effective, and expeditious surgical and medical procedures have been devised and the latest defensive and curative discoveries of medical science have been made available for the protection and restoration of our soldiers. Far-reaching activities have been conducted by the Medical Department here in America, involving the supervision of plans for great base hospitals in the camps and cantonments, the planning of convalescent and reconstruction hospitals for invalided soldiers and anticipatory organization wherever possible to supply relief to distress and sickness as it may arise. Moreover, the task of the Medical Department in connection with the new Army has been exacting. Rigid examinations have been conducted, in the first instance by the physicians connected with the exemption boards, but later at the camps, in order to eliminate from the ranks men whose physical condition did not justify their retention in the military service. Many of the rejections by the Medical Department have caused grief to high-spirited young men not conscious of physical weakness or defect, and perhaps having no weakness or defect which embarrassed their usefulness in civilian occupation; but both the strength of the Army and justice to the men involved require that the test of fitness for military service should be the sole guide, and the judgments of the most expert physicians have been relied upon to give us an army composed of men of the highest possible physical efficiency.

SUMMARY REVIEW OF THE PROGRESS OF THE EUROPEAN WAR.

On July 1, 1916, the situations on the various battle fronts were as follows:

The left flank of the western front rested on the Flanders coast at a point just east of Nieuport. From this point it extended southward via the vicinities of Dixmude-Ypres-Armentieres-Lens-Arras-Albert-Maricourt to Ribecourt on the Oise. From this point the line swung sharply eastward to Soissons; thence via the vicinity of Reims-Verdun to St. Mihiel, thence eastward to the Alsatian boundary near Chateau Salins, thence southward through Alsace to the Swiss frontier in the vicinity of the village of Rechesy. The initiative on this front was held by the Germans, the situation being quiescent except at Verdun where the long continued assaults of the enemy were still in full force.

On the eastern front, the right flank of the Russian line rested on the Riga Gulf at the town of Shlok. From this point the line extended in a southeasterly direction along the left bank of the Dvina

to Dvinsk, thence southward via the vicinity of Smorgon-Pinsk-Dubno to Aleksiniec, thence through eastern Galicia to Czernowitz and the Rumanian frontier. The initiative on this front was at that moment swinging from the Germans to the Russians, the offensives of the former being checked by the Russians in the Dvinsk and Riga sectors.

The left flank of the Italian front rested at the junction of the Swiss, Austrian, and Italian frontiers. From this point the line extended through Austrian territory along the Italian-Austrian frontier to Riva; thence it continued back and forth along the Italian-Austrian frontier to Mount Paralba, where the line swung southward through Italian territory and around the south face of this mountain back again to the frontier, which it again followed to Mount Canin, thence southward across Austrian territory along the west bank of the Isonzo to Sagrado, thence crossing the river to the Gulf of Trieste in the vicinity of Monfalcone. The initiative on this front having rested with the Austrians was about to pass to the Italians.

The Balkan front strictly paralleled the Greek, Servian, Bulgarian, and Rumanian frontiers. Serbia, Albania, and Montenegro having been overrun by the enemy, the situation was quiescent.

The Armenian-Persian fronts extended from the vicinity of Trebizond on the Black Sea southeasterly through Kurdistan to the vicinity of Karmanshah in Persia. Juncture with the British Mesopotamian forces had not yet been accomplished. The initiative on this front was about to pass from the enemy to the Russians. The Mesopotamian front extended from the Persian border westward to the Arabian desert, crossing the Euphrates south of Kut el Amarah. The initiative for the time being rested with the Turks.

On the Egyptian-Syrian front the British were in a strong defensive position along the Suez Canal and at Aden, the initiative resting with the Turks.

The invasion of German East Africa had just begun. Columns entering the country from British East Africa from the north and the Belgians from the Congo were making rapid inroads in a wilderness country. In this area there was no distinct battle front such as existed in Europe, the operations consisting of numerous columns moving southward. While the enemy was putting up a strong defensive, the initiative was with the allied forces.

CHANGES IN THE SITUATION SINCE JULY 1, 1916.

On July 1, 1916, the Somme offensive was initiated by the allies on a 25-mile front on both banks of the Somme River. The impetus of this offensive, though several times checked, continued until early in November, by which time the enemy's assaults on Verdun ceased.

Meanwhile on the eastern front the Russians assumed the offensive and penetrated Galicia. The period from November, 1916, until January 26, 1917, was one of continued reconnaissance and pressure by the allies on the western front. On February 25 the enemy was no longer able to sustain this pressure and withdrew 3 miles along the Ancre, this being the forerunner of the German withdrawal of March 17. On this date the Teutonic line on a 100-mile front was withdrawn to the "Hindenburg line." This restored to France some 1,300 square miles of territory and 250 towns and villages and eliminated the reenterant angle from Lens to Soissons. The newly established line extended from Lens to Vendresse. Following this withdrawal there was a period of reconnaissance and harassment, the initiative being always with the allies. On April 9, assaults on the Hindenburg line began with the Battle of Vimy Ridge. From then until December 1, 1917, these combats have been growing in intensity. The tide of battle has gradually shifted northward to Flanders, culminating in the capture of Passchendaele Ridge, which gave to the allies the last high ground bordering the Flanders Plain.

On July 1, 1916, the Russians assumed the offensive against Galicia. This reached high-water mark in the capture of Stanislaw, Halicz bridgehead, and Brody. The entrance of Roumania into the war on August 27 assisted this movement through the Roumanian forces invading Transylvania and forming a juncture with the Russian forces to the north. Roumania, however, was quickly overrun by the enemy, Bucharest being captured December 6. This breaking of the left flank of the eastern front forced a general retirement of the Russian forces, and gave the initiative to the enemy, which they have here since held. In February the Russian revolution occurred. In the latter part of August, 1917, the Germans began active operations on the Baltic, capturing Riga November 3 and advancing their lines to Jacobstadt. In October the Estonian coast was occupied and the islands of Oesel and Moon were captured, followed shortly by the capture of the Aland Islands, north of the Gulf of Finland.

On July 1, 1916, the Italians passed from the defensive to the offensive and began the preparation of a general forward movement in the Isonzo region. Gorizio was captured August 9. The impetus of the offensive continued throughout the winter and following summer, resulting in the capture of San Gabrielle in September, 1917. Late in October, 1917, the Austrians, aided by several German divisions, commenced an offensive north of Gorizio. The Italian forces were driven out of the Isonzo region and into Italy as far as the Piave River, where they now hold a strong defensive position.

In Macedonia the central powers assumed the offensive August 21, 1916, with heavy fighting in the Vardar Valley, where the Bulgars were heavily pressing both flanks of the allies, who were advancing along the railway to Nish. This offensive was finally stopped, and since that time no especially important operations have taken place in this area.

On the Armenian-Persian front since July 1, 1916, the situation has continued to fluctuate, with the initiative changing from side to side.

In Mesopotamia the British assumed the offensive January 21, 1917, resulting in the capture of Kut el Amara February 26, followed by the capture of Bagdad March 11, 1917. Since that date there have been no important movements in this area.

On the Egyptian-Syrian front the enemy launched an offensive against the Suez Canal, which was wholly unsuccessful, the force being routed August 5, 1916. During this time an Arabic revolution in Arabia wrested Mecca from the Turks and established an independent kingdom. In November, 1917, the British assumed the offensive in Palestine, capturing Beersheba and Jaffa.

In German East Africa the allied invasion of that territory has, since July 1, 1916, progressed without interruption and been brought to a successful conclusion by the complete occupation of that territory.

The situations at the present time—the end of November—on the various fronts are as follows:

Western front.—The new line of the western front leaves the old line of July 1, 1916, in the vicinity of Nieucappelle, passes east of Kippe, through the southern part of the Forest of Houthulst, east of Passchendaele, west of Gheluvelt, and rejoins the old line southeast of Warneton. It again leaves the old line near Lens-Bethune road, passes through Avion, Gavrelle on the Arras-Douai road, Bullecourt, Moeuvres, Bourlon Wood, Masnieres, La Vacquerie, Vendhuile, west of Hargicourt, west of St. Quentin, and reached the Oise River near Moy; thence it passes west of La Fere, east of Coucy, and reaches the Ailette River near the railway bridge northwest of Pinon; thence it follows the Ailette to Corbeny, then passes south of Juvin-court, then near Bermericourt, Betheny, Alger Aubge, Moronvilliers, Auberive, Tahure, Ville-sur-Tourbe, Avocourt, south of Bethincourt, Forges, north of Samogneux, south of Beaumont and Ornes, east of Belonvaux and Damloup, where it joins with the old line as it was July 1, 1916. On this front the initiative remains with the allies.

Eastern front.—In Ethonia, from Revel to Riga, the front is at present a shifting quantity. Beginning at the mouth of the Aa the eastern front extends in a general southerly direction, paralleling

the right bank of the Dvina River to Livenhof; thence passing west of Dvinsk continues south via Lake Drisvyati and Lake Naroch; thence to Pinsk to Brody in Galicia. From this point it continues southward via Chotin-Glodu-Ghimes-Braila to the Black Sea at the southern mouth of the Danube. On this front the initiative lies with the enemy.

Italian front.—Beginning on the right of this front, which rests on the sea in the marshes of the lower Piave, the line extends along that river to Monte Tomba; thence west, passing near Monte Grappa, crossing the Brenta, and thence north of Asiago to the old line of July 1, 1916.

Macedonian front.—The changes on this front have been so trivial that the line as given for July 1, 1916, is in all important details the same at the present time. On this front the situation is quiescent.

Armenian-Persian front.—The right of this line rests on the Black Sea about 75 miles west of Trebizond. From this point it extends to the west and south of Erzingan, thence to the southern edge of Lake Van. From here it extends to the Persian-Turkish frontier, crossing it at a point southwest of Southchboulak. From this point to Kizil-Robat on the Diala River, where the Mesopotamian front begins, the line is ill defined.

Mesopotamian front.—The right flank of this front rests on Kixil-Robax where it connects with the Russian forces in Persia. From this point it extends in a general westerly direction, crossing the Tigris about 25 miles north of Samara, thence it swings southwest, crossing the Euphrates at Ramadie, and thence to the Arabian Desert. On this front the initiative lies with the British.

Syrian front.—As operations on this front have a greater mobility than elsewhere, there is no definite fortified line. In general the front extends from a point on the ocean about 2 miles north of Jaffa eastward to a point about 3 miles from Jerusalem. On this front the initiative rests with the British.

German East Africa.—This German colony has been captured and all resistance there is now at an end.

INSULAR AFFAIRS.

The details of the administration by the Department of the Philippine Islands and Porto Rico appear in the report of the Chief of the Bureau of Insular Affairs. I refer to the subject here only to express profound gratification of the passage on March 2, 1917, of the new organic act for Porto Rico. The act was under consideration for seven years and in its course developed many grave differences of opinion in the legislative branch; but by the act of March 2,

1917, citizenship was conferred upon the Porto Ricans and shortly thereafter an election was held for members of the Senate and House of Representatives of that island. It is especially interesting to know that at the first election held in the island, prohibition was enacted by a large majority, to take effect on the second of March, 1918. Congress gravely considered imposing prohibition by the terms of the fundamental act; finally, however, authorizing the matter to be submitted to the qualified electors of Porto Rico for their determination, with the result that these inhabitants of Porto Rico, with their freshly acquired citizenship, have themselves adopted the policy which Congress gravely debated the propriety of imposing upon them. I am persuaded that a law of this character is immensely strengthened when it starts with the sanction of popular approval by the people to whom it is to apply, and that the action of the people of Porto Rico with regard to the question is a demonstration of the wisdom of the act of Congress as finally passed in remitting the question to the electors of the island.

FINANCIAL STATEMENTS.

Annexed hereto as Table 1 is a statement showing expenditures for the last fiscal year (1917), estimates and appropriations for the present fiscal year (1918), and the estimates for the next fiscal year (1919). This statement shows only expenditures from appropriations made by Congress in pursuance of estimates submitted by the War Department. It does not, therefore, include expenditures from appropriations made by Congress without estimates from the War Department, known as "Indefinite annual appropriations" and "Permanent annual appropriations." Expenditures from appropriations of these two classes are included in the statements annexed hereto as Tables 2, 3, 4, and 5, which are complete and detailed statements of the financial transactions of the Department during the fiscal year ended June 30, 1917, covering every appropriation made for the service of the fiscal years 1917, 1916, 1915, and 1914, and prior years, showing all balances from appropriations, the amounts appropriated under each title of appropriation, the amounts drawn from the Treasury, and the unexpended balance of each appropriation remaining in the Treasury June 30, 1917, subject to requisition. The extraordinary appropriations incident to the present emergency provided by the urgent deficiency act of June 15, 1917, and expenditures therefrom to June 30, 1917, are included in Table 2 and are indicated by the date of the act (June 15, 1917) following the title of the appropriation. These statements show also the amounts covered into the surplus fund of the Treasury

from all appropriations under the control of the War Department which are no longer available or required for expenditure.

COOPERATION OF OTHER DEPARTMENTS.

Throughout the body of this report I have had occasion to express the appreciation of the Department for the cooperation which has been extended to it from every quarter and without which its vast task would have, of course, been impossible of performance. I can not, however, refrain from adding a word of special gratitude for the counsel and assistance which have been given to the War Department by the heads of the other executive departments of the Government. Not only have my associates aided me freely with stimulating and helpful advice, but they have placed at the service of the Army all the great facilities of their departments, and there is scarcely an activity of an unusual kind or of an unusual size which the department has been called upon to undertake in which it has not been actively and effectively aided by inter-departmental cooperation of the most sympathetic and helpful sort.

ENUMERATION OF REPORTS SUBMITTED.

I submit herewith the report of the Chief of Staff, the reports of the heads of the bureaus of the War Department, and the reports required by law to be submitted from those in charge of the various activities associated with the War Department and under its general direct supervision.

NEWTON D. BAKER,
Secretary of War.

APPENDIX A (TABLES 1 TO 5).

TABLE 1.

Statement of expenditures for the last fiscal year (1917), the estimates and appropriations for the present fiscal year (1918), and the estimates for the next fiscal year (1919).

General object.	Expenditures for the fiscal year ended June 30, 1917.	Estimates for the fiscal year ending June 30, 1918.	Appropriations for the fiscal year ending June 30, 1918.	Estimates for the fiscal year ending June 30, 1919.
CIVIL ESTABLISHMENT.				
WAR DEPARTMENT PROPER.				
Salaries:				
Regular employees.....	\$1,710,559.48	\$2,168,490.00	\$2,068,330.00	\$2,100,530.00
Additional employees.....	368,565.78	7,540,732.00	5,161,232.00	10,277,250.00
Contingent expenses, War Department.....	138,149.99	1,187,000.00	865,000.00	621,502.80
Stationery, War Department.....	42,811.68	786,500.00	555,000.00	915,000.00
Postage to postal-union countries, War Department.....	250.00	250.00	250.00	1,000.00
Rent of buildings, War Department.....	29,415.00	284,100.00	85,500.00	242,660.00
Temporary buildings, War Department.....		300,000.00		
Repairs to building.....		15,000.00		
Additional boiler, State, War, and Navy Department Building.....		15,000.00		
Salaries and contingent expenses under Superintendent Public Buildings and Grounds.....	86,956.85	117,069.00	105,559.00	96,223.00
Total, War Department proper..	2,374,208.78	12,414,131.00	8,870,871.00	14,254,255.50
CIVIL PUBLIC WORKS AND MISCELLANEOUS (EXCLUSIVE OF RIVERS AND HARBORS).				
MILITARY PARKS, ETC.				
Secretary's Office:				
Chickamauga and Chattanooga National Park.....	60,538.39	55,260.00	55,260.00	58,650.00
Shiloh National Military Park.....	25,659.36	38,834.00	29,550.00	25,760.00
Gettysburg National Park.....	51,857.58	42,500.00	72,500.00	60,000.00
Vicksburg National Military Park.....	36,379.84	33,000.00	33,000.00	31,730.08
Gulford Courthouse National Military Park.....		8,100.00	8,100.00	11,100.00
Quartermaster Corps:				
National Memorial Celebration and Peace Jubilee, Vicksburg, Miss.....	25,268.96			
Engineer Department:				
Improvement of Yellowstone National Park.....	185,757.16	191,250.00	167,500.00	215,400.00
Improvement of Crater Lake National Park.....	37,289.17	75,000.00	50,000.00	50,000.00
Total, military parks, etc.....	422,750.46	443,944.00	415,910.00	452,640.00
BUILDINGS AND GROUNDS IN AND AROUND WASHINGTON.				
Engineer Department:				
Improvement and care of public grounds, District of Columbia.....	217,235.18	440,550.00	376,550.00	355,050.00
Improvement and care of public grounds.....	13,524.52	19,400.00	14,400.00	19,400.00
Repairs, fuel, etc., Executive Mansion.....	52,966.57	117,000.00	113,000.00	72,000.00
Lighting, etc., Executive Mansion, etc.....	3,213.84	8,000.00	8,600.00	8,600.00
Lighting public grounds, District of Columbia.....	23,451.25	26,120.00	26,120.00	26,120.00
Telegraph to connect the Capitol with the departments and Government Printing Office.....	493.20	500.00	500.00	500.00
Care and maintenance of Washington Monument.....	13,166.80	13,820.00	13,820.00	13,820.00
Repairs to building where Abraham Lincoln died.....	192.52	200.00	200.00	200.00

Statement of expenditures for the last fiscal year (1917), the estimates and appropriations for the present fiscal year (1918), and the estimates for the next fiscal year (1919)—Con.

General object.	Expenditures for the fiscal year ended June 30, 1917.	Estimates for the fiscal year ending June 30, 1918.	Appropriations for the fiscal year ending June 30, 1918.	Estimates for the fiscal year ending June 30, 1919.
CIVIL ESTABLISHMENT—Continued.				
BUILDINGS AND GROUNDS IN AND AROUND WASHINGTON—continued.				
Engineer Department—Continued.				
Improvements, birthplace of Washington, Wakefield, Va.		\$100.00	\$100.00	\$100.00
Tidal basin bathing beach, Potomac Park, District of Columbia.			35,000.00	
Erection of monuments, etc.	\$9,939.01			
Temporary office buildings, War and Navy Departments.			2,000,000.00	
Total.	334,262.89			
Less repayment of funds heretofore reported as expended.	31.50			
Total, buildings and grounds in and around Washington.	334,231.39	626,290.00	2,588,290.00	495,790.00
NATIONAL CEMETERIES.				
Quartermaster Corps:				
National cemeteries.	113,429.57	180,362.00	120,000.00	150,000.00
Pay of superintendents of national cemeteries.	63,063.32	63,120.00	63,120.00	63,120.00
Headstones for graves of soldiers.	43,548.03	50,000.00	50,000.00	50,000.00
Resurfacing roads to national cemeteries.	11,169.47	12,000.00	12,000.00	12,000.00
Burial of indigent soldiers.	1,240.11	2,000.00	2,000.00	2,000.00
Antietam Battlefield, preservation	3,330.57	4,500.00	4,500.00	16,500.00
Disposition of remains of officers, soldiers, and civil employees.	90,284.82	603,500.00	560,000.00	500,000.00
Confederate mound, Oakwood Cemetery, Chicago, Ill.	500.00	500.00	500.00	500.00
Care, etc., of Confederate burial plats.	781.18	1,250.00	1,250.00	1,250.00
Monuments or tablets in Cuba or China.	1,245.48	1,000.00	1,000.00	1,000.00
Burial of indigent patients, Army and Navy Hospital, Hot Springs, Ark.		200.00	200.00	200.00
Confederate Stockade Cemetery, Johnstons Island, Sandusky Bay, Ohio.	250.00	250.00	250.00	250.00
Lodge, national cemetery, Salisbury, N. C.	1,500.00			
Marking graves of Confederate soldiers and sailors who died in northern prisons.	5,000.00			
Reinterment of remains of Orman K. Osborne in national cemetery, San Francisco, Cal.	83.63			
Extension of San Francisco National Cemetery.		12,116.00		12,500.00
Construction of roads and walks, Arlington National Cemetery.		23,061.00		24,000.00
Total, national cemeteries.	335,416.18	953,859.00	814,820.00	833,320.00
MISCELLANEOUS.				
Quartermaster Corps:				
Arrears of pay, bounty, etc. (certified claims).	22,200.81	25,000.00	25,000.00	10,000.00
Pay, etc., of the Army, War with Spain (certified claims).	1,330.23	1,000.00	1,000.00	500.00
Transporting and caring for interned Mexican soldiers and military refugees (certified claims).	5,973.29			
Medical Department:				
Artificial limbs.	57,690.41	210,000.00	210,000.00	1,000,000.00
Appliances for disabled soldiers.	568.39	1,000.00	1,000.00	4,000.00
Trusses for disabled soldiers.	1,136.13	2,000.00	2,000.00	8,000.00
Engineer Department:				
Survey of northern and northwestern lakes.	127,445.17	150,000.00	125,000.00	150,000.00
Expenses, California Debris Commission.	15,092.33	18,000.00	15,000.00	18,000.00
Prevention of deposits, harbor of New York.	85,326.95	109,060.00	96,760.00	125,760.00

Statement of expenditures for the last fiscal year (1917), the estimates and appropriations for the present fiscal year (1918), and the estimates for the next fiscal year (1919)—Con.

General object.	Expenditures for the fiscal year ended June 30, 1917.	Estimates for the fiscal year ending June 30, 1918.	Appropriations for the fiscal year ending June 30, 1918.	Estimates for the fiscal year ending June 30, 1919.
CIVIL ESTABLISHMENT—Continued.				
MISCELLANEOUS—continued.				
Engineer Department—Continued.				
Bridge across Potomac River at Georgetown, District of Columbia.....	\$52,000.00	\$500,000.00	\$400,000.00	\$300,000.00
Maintenance and repairs of Aqueduct Bridge, District of Columbia.....	3,000.00	.....	.....	.....
Maintenance of Highway Bridge across Potomac River, District of Columbia.....	.....	4,000.00	.....	.....
Washington Aqueduct, District of Columbia.....	.....	70,000.00	.....	.....
Permanent International Commission of Congresses of Navigation.....	626.20	.....	.....	.....
Raising U. S. S. Maine, etc., harbor of Habana, Cuba.....	92.09	.....	.....	.....
Replacement of bridge across Republican River, Fort Riley, Kans.....	.....	45,000.00	15,000.00	.....
Investigation of water diversion from Great Lakes and Niagara River.....	.....	.....	25,000.00	.....
Board of Managers, National Home for Disabled Volunteer Soldiers:				
National Home for Disabled Volunteer Soldiers.....	3,969,788.89	3,905,900.00	3,898,900.00	4,278,535.00
State or Territorial homes for disabled soldiers and sailors.....	1,051,737.09	1,070,000.00	1,030,000.00	1,030,000.00
Miscellaneous relief acts, etc.....	716,827.06	.....	53,362.80	.....
Total.....	6,110,835.04	.....	.....	.....
Less repayment of funds heretofore reported as expended.....	8,640.12	.....	.....	.....
Total, miscellaneous.....	6,102,194.92	6,110,960.00	5,898,022.80	6,924,795.00
Total, Civil Establishment.....	9,568,801.73	20,549,184.00	18,587,913.80	22,960,800.50
MILITARY ESTABLISHMENT.				
SUPPORT OF THE ARMY.				
Secretary's office:				
Contingencies of the Army.....	24,469.33	100,000.00	100,000.00	300,000.00
Construction and maintenance of military and postroads, bridges, and trails, Alaska.....	500,000.00	600,000.00	500,000.00	100,000.00
Office of the Chief of Staff:				
Army War College.....	7,523.92	9,000.00	9,000.00	9,000.00
Contingencies, military information section, General Staff Corps.....	74,236.68	1,439,000.00	1,000,000.00	2,000,000.00
Expenses of military observers abroad.....	12,818.96	100,000.00	100,000.00	100,000.00
United States service schools.....	35,386.64	60,675.00	60,675.00	82,810.00
Relief of Matthew E. Hanna, late captain, Tenth Cavalry, U. S. Army.....	.....	532.18	.....	.....
Relief of Maj. Powell C. Fauntleroy, Medical Corps, U. S. Army.....	.....	601.40	.....	.....
Relief of Lieut. Col. Geo. O. Squire, Signal Corps, U. S. Army.....	.....	41.46	.....	.....
Relief of Lieut. Sherman Miles, Field Artillery, U. S. Army.....	.....	57.95	.....	.....
The Adjutant General's Department:				
Contingencies, headquarters of military departments, etc.....	7,112.97	15,000.00	15,000.00	20,000.00
Military publications.....	.....	.....	150,000.00	.....
Chief of Coast Artillery:				
Coast Artillery School, Fort Monroe, Va.....	28,010.50	32,000.00	32,000.00	28,000.00
Chief Signal Officer:				
Signal Service of the Army.....	6,808,278.13	107,031,826.51	99,067,766.00	1,138,240,314.77
Increase for aviation, Signal Corps.....	.....	639,241,452.00	640,000,000.00	.....
Radio installations on Mexican border.....	59,652.90	.....	.....	.....
Washington-Alaska military cable and telegraph system.....	74,489.74	50,000.00	50,000.00	147,445.00

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MILITARY ESTABLISHMENT—Contd.				
SUPPORT OF THE ARMY—continued.				
Chief Signal Officer—Continued.				
Annunciator buzzer systems at at target ranges.....	\$90.37			
Commercial telephone service at Coast Artillery posts.....	7,718.53	\$15,000.00	\$13,500.00	\$15,150.00
Signaling equipment for coast-de- fense posts.....	1,239.03			
Commercial telephone service for the Army.....		49,061.21		
Provost Marshal General's Office:				
Registration and selection for mili- tary service.....	473,500.00	6,002,067.00	6,658,413.00	
Quartermaster Corps:				
Pay, etc., of the Army.....	111,659,255.85	1,265,729,836.54	844,639,118.30	1,003,933,676.04
Supplies, services, and transpor- tation, Quartermaster Corps.....	192,859,584.06			
Subsistence of the Army.....		532,892,258.15	401,500,000.00	298,405,655.57
Regular supplies.....		279,172,034.42	240,250,114.23	203,031,811.00
Incidental expenses.....		25,153,302.58	19,000,000.00	10,457,814.59
Transportation of the Army and its supplies.....		689,058,056.48	612,963,745.42	809,532,025.72
Water and sewers at military posts.....		50,373,133.00	36,432,669.00	19,735,546.00
Clothing and camp and garri- son equipage.....		617,687,879.49	610,198,648.64	883,172,148.36
Horses for Cavalry, Artillery, En- gineers, etc.....	8,465,971.31	125,767,116.00	65,400,000.00	28,755,991.00
Barracks and quarters.....	11,685,674.11	139,374,861.77	99,758,314.20	26,839,967.00
Military post exchanges.....	44,217.70	725,445.00	800,000.00	1,247,612.00
Equipping Army transports with lifeboats and rafts.....	3,790.00			
Roads, walks, wharves, and drain- age.....	1,220,940.67	23,996,892.75	18,139,965.00	3,043,443.00
Barracks and quarters, Philippine Islands.....	737,924.53	730,000.00	500,000.00	4,266,830.00
Construction and repair of hos- pitals.....	763,295.55	41,434,494.00	37,865,267.00	25,000,000.00
Quarters for hospital stewards.....	11,693.23	70,560.00	25,000.00	89,100.00
Shooting galleries and ranges.....	30,599.05	6,259,540.00	6,059,540.00	343,110.00
Maintenance, Army War College.....	9,702.63	10,700.00	10,700.00	12,200.00
Rent of buildings, Quartermaster Corps.....	38,667.84	89,955.10	79,100.10	100,015.10
Claims for damage to and loss of private property.....	7,475.04	20,000.00	20,000.00	10,000.00
Transportation of rifle teams to national matches.....	60,000.00			
Vocational training of soldiers.....		200,000.00	250,000.00	75,000.00
Filling equipment for the Army.....		45,000.00	45,000.00	
Council of National Defense.....		200,000.00		
Repairs to buildings at Gulf forts.....	35,000.00		89,962.60	
Purchase of land, addition to Jef- fersonville (Ind.), depot.....				23,000.00
Relief of Col. Frederick G. Hodg- son.....		21.00		
Relief of Lieut. H. E. Miner.....		160.00		
Relief of Maj. H. E. Ely.....		200.00		
Relief of Capt. J. A. Barry.....		135.00		
Relief of Capt. Waldo C. Potter.....		375.00		
Relief of Capt. J. F. Taulbee.....		200.00		
Relief of Capt. Sloan Doak.....		150.00		
Relief of St. Francis Hospital, Newport News, Va. (medical services rendered George Vay, injured seaman).....		103.90		
Reimbursement to Frank C. Cady, acting dental surgeon.....		127.61		
Relief of Leland Stanford Junior University.....		450.01		
Relief of Lieut. Joseph T. Clement.....		50.00		
Reimbursement to Lieut. Col. Frederick P. Reynolds.....		323.90		
Reimbursement to Maj. Leartus J. Owen.....		191.67		
Reimbursement to Capt. Adam E. Schlanser.....		278.00		
Reimbursement to Capt. E. D. Kramers.....		340.00		

Statement of expenditures for the last fiscal year (1917), the estimates and appropriations for the present fiscal year (1918), and the estimates for the next fiscal year (1919)—Con.

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MILITARY ESTABLISHMENT—Contd.				
SUPPORT OF THE ARMY—continued.				
Quartermaster Corps—Continued.				
Reimbursement of Capt. L. B. McAfee.....		\$293.00		
Reimbursement of Capt. Jay D. Whitham.....		86.80		
Reimbursement of Lieut. G. D. Graham.....		301.20		
Relief of Lieut. H. G. Foster.....		350.48		
Relief of Lieut. S. R. Beard.....		168.80		
Relief of Lieut. Hastie A. Stuart.....		182.40		
Reimbursement to Lieut. William A. Squires.....		260.79		
Payment of judgment and costs against Lieut. Biddle.....		529.63		
Relief of Lieut. Francis J. Baker.....		141.00		
Relief of Capt. N. E. Margettes.....		67.90		
Relief of Capt. Francis A. Ruggles.....		414.81		
Payment for rent of buildings, Philippine Islands.....		1,722.42		
Repairs to wharf at Marivelles, Philippine Islands.....		700.00		
Relief of Capt. Lewis J. Emery, Quartermaster, Officers Reserve Corps.....				\$139.00
Medical Department:				
Medical and hospital department.....	\$6,438,308.89	125,300,000.00	\$130,780,000.00	157,111,894.00
Replacing medical supplies.....	44,478.27			
Army Medical Museum and Library.....	10,071.04	15,000.00	15,000.00	30,000.00
Hospital care, Canal Zone garrisons.....	46,372.58	45,000.00	35,000.00	60,000.00
Bureau of Insular Affairs:				
Care of insane Philippine soldiers.....	805.20	1,500.00	1,500.00	1,500.00
Care of insane soldiers, Porto Rico.....				
Regiment of Infantry.....	300.00	300.00	300.00	300.00
Engineer Department:				
Engineer depots.....	36,925.71	35,000.00	35,000.00	50,000.00
Engineer school, Washington, D. C.....	23,882.80	30,000.00	30,000.00	30,000.00
Engineer equipment of troops.....	1,398,027.43	49,150,000.00	49,150,000.00	135,000,000.00
Civilian assistants to engineer officers.....	79,000.83	75,000.00	75,000.00	115,000.00
Engineer operations in the field.....	1,087,096.42	280,800,000.00	280,800,000.00	892,000,000.00
Contingencies, Engineer Department, Philippine Islands.....	3,992.33	4,000.00	4,000.00	4,000.00
Military surveys and maps.....	87,000.00	1,700,000.00	700,000.00	1,000,000.00
Lithograph press, Army service schools, Fort Leavenworth, Kans.....				6,000.00
Ordnance Department:				
Ordnance service.....	493,517.39	14,900,000.00	14,825,000.00	25,500,000.00
Ordnance stores, ammunition.....	3,374,922.21	216,318,000.00	212,798,000.00	390,000,000.00
Small-arms target practice.....	2,158,514.91	108,326,000.00	109,176,000.00	75,200,000.00
Manufacture of arms.....	2,208,192.97	93,494,000.00	78,039,000.00	50,000,000.00
Ordnance stores and supplies.....	6,077,163.47	254,865,000.00	230,070,000.00	93,400,000.00
National trophy and medals for rifle contests.....	6,625.00	10,000.00	10,000.00	10,000.00
Automatic rifles (machine).....	764,641.17	256,496,700.00	291,177,000.00	237,144,000.00
Armored motor cars.....	23,197.21	27,158,000.00	41,250,000.00	75,550,000.00
Antiaircraft guns, Army.....		760,000.00	1,010,000.00	
Ammunition for antiaircraft guns, Army.....		1,640,000.00	1,840,000.00	
Nitrate plants.....	21,920.82			
Machinery for the manufacture of rifles.....		9,500,000.00	9,500,000.00	
Arms, ammunition, etc., for rifle clubs.....		1,100,000.00		
Claims for loss of private property.....				7,800.00
Total.....	360,133,314.90			
Less repayment of funds heretofore reported as expended.....	570,527.80			
Total, support of the Army (including pay of reserve corps and National Guard).....	359,562,787.10	6,095,469,235.31	5,193,104,298.49	6,591,338,198.15

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MILITARY ESTABLISHMENT—Contd.				
RESERVE CORPS.				
Quartermaster supplies, equipment, etc., for reserve officers training corps.		\$4,385,000.00	\$4,385,000.00	\$2,135,671.00
Ordinance stores, equipment, etc., for reserve officers training corps.		1,074,000.00	1,524,000.00	2,921,725.00
Quartermaster supplies, equipment, etc., enlisted reserve corps.		267,650.00	250,000.00	
Signal equipment, enlisted reserve corps.		500,000.00	300,000.00	
Total, reserve corps.		6,226,650.00	6,459,000.00	5,057,396.00
MILITARY ACADEMY.				
Pay of Military Academy.	\$785,846.16	1,024,304.70	963,602.18	1,215,447.95
Maintenance, United States Military Academy.	308,454.20			
Current and ordinary expenses.		191,745.00	178,500.00	236,725.00
Miscellaneous items and incidental expenses.		101,350.00	79,780.00	136,916.00
Buildings and grounds.		1,536,623.60	132,764.00	4,124,165.62
Total, Military Academy.	1,094,300.36	2,854,023.30	1,374,646.18	5,713,254.57
MILITIA.				
Field Artillery for Organized Militia.	1,773,612.41			
Ammunition for Field Artillery for Organized Militia.	1,211,665.23			
Care of horses and material, Field Ar- tillery, Organized Militia.	6,302.63			
Encampment and maneuvers, Organ- ized Militia.	168,995.48			
Equipment of Coast Artillery armor- ies, Organized Militia.	28,098.86			
Total, militia.	3,188,674.51			
NATIONAL GUARD.				
Arming, equipping and training the National Guard.	1,084,257.31	12,727,000.00	5,312,000.00	316,500.00
Arms, uniforms, equipment, etc., for field service, National Guard.	668,199.69	4,576,000.00	7,000,000.00	50,000.00
Supplying and exchanging Infantry equipment, National Guard.	400,000.00	800,000.00	1,200,000.00	
Ranges for Field Artillery practice, National Guard.	163,919.76			
Automatic rifles for National Guard.	342,610.27	40,489,000.00	2,500,000.00	
Field Artillery for National Guard.	922,915.74	100,400,000.00	10,000,000.00	
Ammunition for Field Artillery for National Guard.	3,497,693.59	206,200,000.00	10,000,000.00	
Total, National Guard.	7,079,596.36	365,192,000.00	36,012,000.00	366,500.00
CIVILIAN MILITARY TRAINING.				
Civilian military training camps.	4,040,302.25	5,710,000.00	8,211,000.00	6,018,000.00
Military training camp, Fort Douglas, Utah.	21,906.27			
Rifle ranges for civilian instruction.	50,080.22	520,000.00	320,000.00	1,720,000.00
Quartermaster supplies for military equipment of schools and colleges.		80,000.00	80,000.00	81,505.00
Ordinance supplies for military equip- ment of schools and colleges.		768,000.00	718,000.00	1,138,700.00
Ordinance stores and equipment, civil- ian military training camps.		3,750,000.00	3,750,000.00	
Ordinance equipment for Home Guard organizations.				4,500,000.00
Total, civilian military training.	4,112,288.74	10,828,000.00	13,079,000.00	13,461,205.00

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MILITARY ESTABLISHMENT—Contd.				
FORTIFICATIONS AND OTHER WORKS OF DEFENSE.				
Engineer Department:				
Gun and mortar batteries.....	\$1,305,661.59	\$3,277,000.00	\$5,102,000.00	\$3,278,280.00
Electrical installations at seacoast fortifications.....	28,342.90	1,810,000.00	1,810,000.00	.....
Sites for fortifications and seacoast defenses.....	1,116,376.19	100,000.00	100,000.00	.....
Searchlights for harbor defenses.....	72,277.01	6,150,000.00	250,000.00	.....
Searchlights for defensive purposes.....	.....	.....	5,900,000.00	.....
Preservation and repair of fortifi- cations.....	196,743.75	300,000.00	250,000.00	300,000.00
Repair and restoration of defenses of Galveston, Tex.....	52,490.50	.....	.....	.....
Repair and protection of defenses, Pensacola, Fla.....	226.00	.....	.....	.....
Repair and protection of defenses, Mobile, Ala.....	41.03	.....	.....	.....
Plans for fortifications.....	17,295.00	25,000.00	25,000.00	25,000.00
Supplies for seacoast defenses.....	51,900.67	40,000.00	40,000.00	40,000.00
Preservation and repair of torpedo structures.....	351.70	.....	.....	.....
Sea walls and embankments.....	18,547.76	93,000.00	93,000.00	.....
Casemates, galleries, etc., for sub- marine mines.....	67,761.22	750,000.00	650,000.00	200,000.00
Roads, trails, water and sewer sys- tems, etc., seacoast fortifications.....	22,000.00	40,000.00	40,000.00	.....
Fortifications in insular posses- sions.....	528,124.72	1,414,500.00	770,500.00	1,433,500.00
Land defenses in the United States.....	.....	2,000,000.00	2,000,000.00	.....
Contingencies of fortifications.....	.....	1,000,000.00	.....	.....
Contingent expenses seacoast forti- fications.....	.....	.....	1,000,000.00	.....
Sandy Hook Reservation, N. J.....	25,000.00	.....	.....	60,000.00
Chief signal officer:				
Aviation, seacoast defenses.....	123,013.33	.....	3,800,000.00	.....
Aviation, seacoast defenses, insu- lar possessions.....	78,550.00	.....	1,200,000.00	.....
Maintenance, etc., fire-control in- stallations at seacoast defenses.....	108,474.35	180,000.00	140,000.00	180,000.00
Maintenance, etc., fire-control in- stallations at seacoast defenses, insular possessions.....	11,357.93	15,000.00	12,500.00	25,000.00
Ordnance Department:				
Armament of fortifications.....	9,435,116.16	3,020,314,750.00	2,135,292,000.00	3,320,790,415.00
Proving ground, Sandy Hook, N. J.....	107,860.13	826,000.00	125,000.00	.....
Proving grounds, Army.....	.....	.....	700,000.00	1,000,000.00
Submarine mines.....	879,794.98	4,303,967.50	4,220,330.00	125,000.00
Fortifications in insular possessions.....	1,282,543.25	15,002,510.00	10,200,510.00	4,683,000.00
Submarine mines in insular posses- sions.....	63,289.02	83,750.00	83,000.00	10,000.00
Radiodynamic torpedoes.....	30,000.00	.....	.....	.....
Special aids and appliances for manufacture of arms, ammuni- tions, etc.....	8,000.00	500,000.00	.....	.....
Board of ordnance and fortifica- tion.....	64,313.58	150,000.00	150,000.00	150,000.00
Chief of Coast Artillery:				
Fire control at fortifications.....	332,104.26	3,756,021.21	3,756,021.00	31,000.00
Fire control in insular possessions.....	45,850.69	31,537.50	31,537.00	51,707.57
Coast Artillery, war instruction.....	1,000.00	750.00	750.00	1,250.00
Total, fortifications and other works of defense.....	15,571,425.72	3,065,132,786.21	2,177,542,148.00	3,332,445,122.57
ARSENALS.				
Ordnance Department:				
Augusta Arsenal, Augusta, Ga.....	.....	5,000.00	5,000.00	.....
Benicia Arsenal, Benicia, Cal.....	51,473.35	107,200.00	88,200.00	148,000.00
Frankford Arsenal, Philadelphia, Pa.....	604,500.00	3,538,800.00	1,988,000.00	1,437,500.00
Picatinny Arsenal, Dover, N. J.....	63,000.00	220,500.00	108,500.00	199,000.00
Rock Island Arsenal Rock Island, Ill.....	213,071.06	6,489,800.00	7,118,800.00	4,142,000.00

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MILITARY ESTABLISHMENT—Contd.				
ARSENALS—continued.				
Ordnance Department—Continued.				
San Antonio Arsenal, San Antonio, Tex.	\$92,200.00	\$339,000.00	\$158,000.00	\$206,000.00
Springfield Arsenal, Springfield, Mass.	25,557.73	639,500.00	339,500.00	142,000.00
Watertown Arsenal, Watertown, Mass.	96,925.00	1,755,600.00	1,703,100.00	390,000.00
Watervliet Arsenal, West Troy, N. Y.	328,061.20	1,141,600.00	982,600.00	96,000.00
Rock Island Bridge, Rock Island, Ill.	16,362.97	20,000.00	20,000.00	30,000.00
Rock Island power plant, Rock Island, Ill.	12,500.00	12,500.00	12,500.00	25,000.00
Proving Ground, Sandy Hook, N. J.	15,032.67	125,000.00	125,000.00	.....
Sodium nitrate storage.	155,100.00	.....	.....	.....
Ordnance depot, Honolulu, Hawaii.	100,384.00	.....	.....	134,600.00
Ordnance depot, Manila, P. I.	1,061.36	.....	.....	.....
Testing machine.	17,721.28	25,000.00	25,000.00	30,000.00
Repairs of arsenals.	367,026.02	900,000.00	1,300,000.00	3,500,000.00
Storage facilities at armories and arsenals.	.....	1,500,000.00	1,000,000.00	37,000,000.00
Proving ground facilities.	.....	8,500,000.00	8,500,000.00	.....
Terminal storage and shipping buildings.	.....	25,000,000.00	10,000,000.00	29,000,000.00
Nitric acid plant.	.....	.....	.....	200,000.00
Ammonia plant.	.....	.....	.....	1,100,000.00
Sodium cyanide plant.	.....	.....	.....	300,000.00
Total, arsenals.	2,159,996.64	50,319,500.00	33,472,200.00	78,070,100.00
MILITARY POSTS.				
Quartermaster Corps:				
Military posts.	15,150.28	7,406,080.24	.....	3,271,069.00
Military post, Schofield Barracks, Hawaii.	723,554.68	1,077,000.00	1,077,000.00	.....
Military prison, Fort Leavenworth, Kans.	32,234.00	.....	.....	.....
Sewerage system, Fort Monroe, Va.	9,040.26	9,359.99	9,359.99	50,171.67
Water supply, Presidio of San Francisco, Cal.	98,937.50	.....	.....	.....
Supply depot, Fort Sam Houston, Tex.	501,200.00	.....	.....	.....
Target range, Fort Bliss, N. Mex.	6,400.00	19,540.00	.....	.....
Barracks and quarters, seacoast defenses.	46,465.80	4,362,000.00	3,462,000.00	5,788,077.00
Seacoast defenses, Philippine Islands and Hawaii.	247,602.26	178,480.00	93,000.00	1,499,121.00
Buildings, Jeffersonville depot, Indiana.	9,500.00	.....	9,500.00	.....
Purchase of land, military reservation, Fort Sam Houston, Tex.	330,000.00	.....	330,000.00	.....
Land for aviation purposes, Army.	299,991.20	.....	.....	.....
Enlargement and reclamation of Fort Taylor, Key West, Fla.	.....	350,000.00	.....	.....
Addition to military reservation, Schofield Barracks, Hawaii.	.....	36,600.00	.....	.....
Post-office building and quarters for postal employees, Schofield Barracks, Hawaii.	.....	26,000.00	.....	.....
Greenhouse at United States Disciplinary Barracks farm colony, Fort Leavenworth, Kans.	.....	30,850.00	.....	.....
United States Disciplinary Barracks, Fort Leavenworth, Kans.	.....	284,639.00	.....	508,636.50
Acquisition of land, Leon Springs Military Reservation.	.....	316,941.00	.....	.....
Acquisition of land for mobilization, aviation, maneuver, training, and supply purposes in El Paso County, Tex.	.....	155,400.00	.....	.....

Statement of expenditures for the last fiscal year (1917), the estimates and appropriations for the present fiscal year (1918), and the estimates for the next fiscal year (1919)—Con.

General object.	Expenditures for the fiscal year ended June 30, 1917.	Estimates for the fiscal year ending June 30, 1918.	Appropriations for the fiscal year ending June 30, 1918.	Estimates for the fiscal year ending June 30, 1919.
MILITARY ESTABLISHMENT—Contd.				
MILITARY POSTS—continued.				
Quartermaster Corps—Continued.				
Enlargement of Fort Worden, Wash.....		\$7,500.00		
Acquisition of a tract of land in the Maui pocket adjoining military reservation of Schofield Bar- racks, Hawaii.....		41,000.00		
Acquisition of a tract of land, Scho- field Barracks, Hawaiian Terri- tory Military Reservation.....		10,300.00	\$10,300.00	
Quartermaster's depot, St. Louis, Mo.....			300,000.00	
Military posts, Hawaiian Islands.....				\$6,071,200.00
Engineer Department:				
Buildings, Engineer School and post, Washington, D. C.....		202,500.00	202,500.00	
Total.....	\$2,320,075.98			
Less repayment of funds hereto- fore reported as expended.....	245.95			
Total, military posts.....	2,319,830.03	14,514,160.23	5,493,659.99	17,188,275.17
MISCELLANEOUS.				
Furnishing commissions for officers of the Army.....	5,907.35			
Support of dependent families of en- listed men.....	5,498,912.33			
Maps, War Department.....	7,836.54	10,000.00	10,000.00	10,000.00
Topographic maps, War Department.....	35,000.00			
Total, miscellaneous.....	5,542,356.22	10,000.00	10,000.00	10,000.00
Total, Military Establishment.....	400,636,255.68	9,610,546,355.05	7,466,546,952.66	10,043,650,051.46
RIVERS AND HARBORS.				
Improvement of rivers and harbors (general improvement).....		31,123,000.00	27,701,150.00	18,142,550.00
Improvement of rivers and harbors (continuing contracts).....	27,003,882.96	1,005,000.00	1,005,000.00	1,035,000.00
Flood control, Mississippi River and Sacramento River, Cal.....		4,500,000.00	6,000,000.00	10,330,000.00
Surveys of waters in States of Minne- sota, North Dakota, and South Dakota.....			25,000.00	
Claims for damages by collision, river and harbor works.....	1,448.43			
Relief of Theodore Bage for injuries.....	221.91			
Relief of Mrs. Joseph Cameron, widow of Joseph Cameron, for injuries.....	242.00			
Reimbursement to John Simpson.....	100.00	100.00	100.00	
Relief of Drs. Blair and Blake, Dr. W. J. Maxwell, Dr. R. C. Evans, and J. B. Blalock.....	429.15			
Relief of M. A. Sweeney Shipyard & Foundry Co.....	2,635.00			
Relief of Thomas J. Bye.....	500.00			
Relief of Gottlob Schlect.....	499.20			
Relief of Maurice D. Higgins.....	499.20			
Relief of heirs and legal representa- tives of Valentine Brasch.....	499.20			
Relief of Lieut. Col. Mason M. Patrick, U. S. Army.....		6.80		6.80
Relief of Washington C. Bradyhouse.....		22.00		22.00
Relief of certain civilian employees of the Engineer Department at large, U. S. Army (dredge C. B. Comstock).....		2,360.95		2,360.95
Relief of F. C. Grimm.....		12.00		12.00
Relief of crew of Government dredge Capt. C. W. Howell.....		545.90		545.90
Relief of Bouncer Hebron and Cary Caldwell.....		25.00		25.00

Statement of expenditures for the last fiscal year (1917), the estimates and appropriations for the present fiscal year (1918), and the estimates for the next fiscal year (1919)—Con.

General object.	Expenditures for the fiscal year ended June 30, 1917.	Estimates for the fiscal year ending June 30, 1918.	Appropriations for the fiscal year ending June 30, 1918.	Estimates for the fiscal year ending June 30, 1919.
MILITARY ESTABLISHMENT—Cont'd.				
RIVERS AND HARBORS—Continued.				
Relief of Italian bark Fenice.....		872.96		872.96
Relief of Robert C. Lynn.....		154.75		154.75
Relief of C. C. O'Donnell.....		74.20		74.20
Relief of Frank Vumbaca.....		419.00		419.00
Relief of crew of U. S. gasoline tender Perry.....		218.60		218.60
Relief of Oscar Thomson and others.....		160.21		
Relief of Douglas J. Rollow.....		20.00		20.00
Relief of Standard American Dredging Co.....		3,020.72		3,020.72
Relief of Western Union Telegraph Co. Relief of disbursing officers, Engineer Department.....		50.77		50.77
Relief for damages to private property by blasting operations, Port Chester Harbor, N. Y. and Conn.....				125.00
Relief of Lieut. Col. H. Jervay, Corps of Engineers.....				160.31
Relief of John O'Brien.....				24.00
				35.00
Total, rivers and harbors.....	\$27,010,957.05	\$36,636,063.96	\$34,731,250.00	\$29,515,697.96
RECAPITULATION.				
Civil establishment (War Department proper):				
Salaries, contingent expenses, etc. (including office of Public Buildings and Grounds).....	2,374,208.78	12,414,131.00	8,870,871.00	14,254,255.50
Civil public works and miscellaneous (exclusive of rivers and harbors):				
National and military parks.....	422,750.46	443,944.00	415,910.00	452,640.00
Buildings and grounds in and around Washington.....	334,231.39	626,290.00	2,588,290.00	495,790.00
National cemeteries.....	335,416.18	953,859.00	814,820.00	833,320.00
Miscellaneous objects.....	372,482.00	1,135,060.00	915,780.00	1,616,260.00
National Home for Disabled Vol- unteer Soldiers.....	5,021,525.98	4,975,900.00	4,628,900.00	5,308,535.00
Miscellaneous relief acts, etc.....	708,186.94		53,362.80	
Total civil establishment.....	9,568,801.73	20,549,184.00	18,587,913.80	22,660,800.50
Military Establishment:				
Support of the Army (including pay of Reserve Corps and Na- tional Guard).....	359,502,787.10	6,095,469,235.31	5,193,104,298.49	6,591,338,198.15
Reserve Corps.....		8,226,660.00	6,459,000.00	5,067,390.00
Military Academy.....	1,094,300.36	2,854,023.30	1,374,646.18	5,713,254.57
Militia.....	3,188,674.51			
National Guard.....	7,079,596.36	365,192,000.00	36,012,000.00	366,500.00
Civilian military training.....	4,112,288.74	10,828,000.00	13,079,000.00	13,461,205.00
Fortifications.....	15,571,425.72	3,065,132,786.21	2,177,542,148.00	3,332,445,122.57
Arsenals.....	2,159,996.64	50,319,500.00	33,472,200.00	78,070,100.00
Military posts.....	2,319,830.03	14,514,160.23	5,493,659.99	17,188,275.17
Miscellaneous.....	5,547,356.22	10,000.00	10,000.00	10,000.00
Total Military Establishment.....	400,636,255.68	9,610,546,355.05	7,466,546,952.66	10,043,650,051.46
Rivers and harbors.....	27,010,957.05	36,636,063.96	34,731,250.00	29,515,697.96
Grand total.....	427,216,014.46	9,667,731,603.01	7,519,866,116.46	10,096,126,549.92

Comparative statement of estimates for the fiscal year 1919 with estimates and appropriations for the fiscal year 1918.

General object.	Increase of estimates for 1919 as compared with estimates for 1918.	Decrease of estimates for 1919 as compared with estimates for 1918.	Increase of estimates for 1919 as compared with appropriations for 1918.	Decrease of estimates for 1919 as compared with appropriations for 1918.
Civil establishment (War Department proper): Salaries, contingent expenses, etc. (including Office of Public Buildings and Grounds).....	\$1,840,124.50		\$5,382,384.50	
Civil public works and miscellaneous (exclusive of rivers and harbors):				
National and military parks.....	8,696.00		36,730.00	
Buildings and grounds in and around Washington.....		\$130,500.00		\$2,082,500.00
National cemeteries.....		120,539.00	18,580.00	
Miscellaneous objects.....	481,200.00		700,500.00	
National Home for Disabled Volunteer Soldiers.....	332,625.00		379,635.00	
Miscellaneous relief acts, etc.....				53,362.80
Military Establishment:				
Support of the Army (including pay of Reserve Corps and National Guard).....	495,868,962.84		1,398,233,899.66	
Reserve Corps.....		1,169,254.00		1,401,604.00
Military Academy.....	2,859,231.27		4,338,608.39	
National Guard.....		364,825,500.00		35,645,500.00
Civilian military training.....	2,632,205.00		382,205.00	
Fortifications and other works of defense.....	267,312,336.26		1,154,902,974.57	
Arsenals.....	27,750,000.00		44,597,900.00	
Military posts.....	2,674,114.94		11,694,615.18	
Rivers and harbors.....		7,120,366.00		5,215,552.04
Total.....	801,761,105.91	373,366,159.00	2,620,668,962.30	44,408,518.84
Less decrease.....	373,366,159.00			
Net increase of estimates for 1919 as compared with estimates for 1918.....	428,394,946.91			
Less decrease.....			44,408,518.84	
Net increase of estimates for 1919 as compared with appropriations for 1918.....			2,576,260,443.46	

TABLE 2.

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1920 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balances which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT.							
<i>War Department, salaries, etc.</i>							
Secretary's Office:							
Salaries—							
Office of Secretary of War.		\$145,840.00		\$145,840.00	\$141,500.00		\$4,340.00
Adjutant General's Office.		724,870.00		724,870.00	703,334.99		21,535.01
Office of Inspector General.		12,560.00		12,560.00	12,100.00		460.00
Office of Judge Advocate General, United States Army.		26,600.00		26,600.00	26,010.00		590.00
Signal Office.		24,800.00		24,800.00	24,760.00		40.00
Office of Quartermaster General.		372,920.00		372,920.00	365,400.00		7,520.00
Office of Surgeon General.		163,370.00		163,370.00	163,300.00	\$50.00	70.00
Office of Chief of Ordnance.		91,610.00		91,610.00	90,600.00		1,010.00
Office of Chief of Engineers.		103,310.00		103,310.00	101,250.00		2,060.00
Bureau of Insular Affairs.		87,230.00		87,230.00	85,210.00		2,020.00
Additional employees, War Department, act Sept. 8, 1916.		218,983.33		218,983.33	193,565.78		25,417.55
Additional employees, War Department, act June 15, 1917.		900,000.00		900,000.00	175,000.00		725,000.00
Contingent expenses, War Department.		55,000.00		55,000.00	54,771.88		228.12
Contingent expenses, War Department, act June 15, 1917.		415,000.00		415,000.00	75,000.00		340,000.00
Stationery, War Department.		27,500.00		27,500.00	27,299.44		200.56
Stationery, War Department, act June 15, 1917.		200,000.00		200,000.00	15,000.00		185,000.00
Rent of buildings, War Department.		24,700.00		24,700.00	24,415.00		285.00
Rent of buildings, War Department, act June 15, 1917.		75,000.00		75,000.00	6,000.00		69,000.00
Postage to Postal Union countries, War Department.		250.00		250.00	250.00		
Statement of receipts and expenditures in Cuba and the Philippine Islands.							
	\$109.39			109.39			109.39
Total War Department, salaries, etc.	109.39	3,701,543.33		3,701,652.72	2,283,767.09	50.00	1,417,835.63

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1920 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
Public buildings and grounds in and around Washington.							
Engineer Department:							
Tidal Basin Bathing Beach, Potomac Park, D. C.		\$35,000.00		\$35,000.00			\$35,000.00
Salaries of employees, public buildings and grounds.		85,610.00		85,610.00	\$82,380.60		3,219.40
Contingent expenses, public buildings and grounds.		8,288.00		8,288.00	8,288.00		500.00
Improvement and care of public grounds.		14,400.00		14,400.00	13,900.00		
Improvement and care of public grounds, District of Columbia.		279,550.00		279,550.00	217,909.77		62,240.23
Repairs, fuel, etc., Executive Mansion.		58,000.00		58,000.00	58,000.00		
Lighting, etc., Executive Mansion, etc.		8,000.00		8,000.00	8,000.00		
Lighting public grounds, District of Columbia.		8,000.00		8,000.00	8,000.00		
Telegraph to connect the Capitol with the department.		26,120.00		26,120.00	24,120.00		2,000.00
Repairs to building where the President Lincoln died.		500.00		500.00	500.00		
Care and maintenance of Washington Monument.		200.00		200.00	200.00		
Improvements, birthplace of Washington, Wakefield, Va.		13,820.00		13,820.00	13,820.00		100.00
		100.00		100.00			
Total buildings and grounds in and around Washington.		522,188.00		522,188.00	417,128.37		105,059.63
War Department, salaries, etc.	\$109.39	3,701,543.33		3,701,552.72	2,283,767.09	\$50.00	1,417,835.63
Buildings and grounds in and around Washington.		522,188.00		522,188.00	417,128.37		105,059.63
Total War Department, proper.	109.39	4,223,731.33		4,223,840.72	2,700,895.46	50.00	1,522,895.26
PUBLIC WORKS.							
Military parks, etc.							
Secretary's Office:							
Chickamauga and Chattanooga National Park.	8,468.16	55,260.00		63,728.16	60,525.71		3,202.45
Shiloh National Military Park.		25,800.00		25,800.00	25,656.36		143.64
Gettysburg National Park.	4,552.80	78,427.00		77,979.80	47,979.80		30,000.00
Vicksburg National Military Park.	4,449.28	33,000.00		37,449.28	36,081.84		617.44
Quartermaster Corps:							
National memorial celebration and peace jubilee, Vicksburg, Miss.		150,000.00		160,000.00	25,268.96		124,731.04
Engineer Department:							
Road to Mount Rainier National Park.	193.28			193.28			193.28

Improvement of Crater Lake National Park.....	3,079.46	50,000.00	53,079.46	83,640.01	19,226.85
Improvement of Yellowstone National Park.....	681.78	197,200.00	197,781.78	170,577.36	18,204.42
Total, military parks, etc.	21,324.76	584,687.00	606,011.76	409,592.64	196,419.12
Monuments.					
Engineer Department:					
Memorial to Gen. Ulysses S. Grant.....	42,000.00		42,000.00	2,000.00	40,000.00
Monument to commemorate the battle of Princeton, N. J.....	19,000.00				20,000.00
Site and pedestal for memorial to Alexander Hamilton, Monument to Gen. Scriven and Stewart, Midway Ga.....	10,000.00	\$10,000.00	10,000.00		10,000.00
Monument in memory of Francis Scott Key and others, Fort McHenry, Baltimore, Md.....	31.60		31.60		31.60
Memorial monument, Horseshoe Battleground, Ala.....	71,000.00		71,000.00	17,999.01	53,000.99
Unveiling memorial to Gen. Ulysses S. Grant.....	4,525.00		4,525.00		4,525.00
MacDonough Memorials, Lake Champlain, N. Y., and Vt.....	5,000.00		5,000.00		5,000.00
Total monuments	138,000.00		138,000.00		138,000.00
Repayments in excess of payments	284,556.60	5,000.00	289,556.60	19,999.01	279,557.59
Actual expenditures				9,999.01	
Funds contributed pursuant to legislation contained in public act of Mar. 4, 1911 (36 Stat., 1352), for the following purposes are not included in the foregoing statement of receipts and expenditures for the reason that it is considered by the War Department as a trust or special fund:					
Funds contributed for memorial monument at Germantown, Pa.—					
Balance on hand July 1, 1916.....	\$25,000.00				
Expended during the fiscal year 1917.....	16,000.00				
Balance on hand June 30, 1917.....	9,000.00				
MISCELLANEOUS PUBLIC WORKS—CIVIL.					
Secretary's Office:					
Wagon roads, bridges, and trails, Alaska fund.....	26,533.33	136,677.26	163,210.59	50,117.36	113,093.20
Engineer Department:					
Survey of northern and northwestern lakes.....		125,000.00	125,000.00	124,941.01	58.99
Expenses California Deloris Commission.....		15,000.00	15,000.00	15,000.00	
Bridge across Potomac River at Georgetown, D. C.....	149,000.00	100,000.00	249,000.00	52,000.00	197,000.00
Maintenance and repairs of Aqueduct Bridge, District of Columbia.....			25,000.00	3,000.00	22,000.00
Acquiring title to squares 612 and 613, District of Columbia.....	25,000.00				
Prevention of deposits, harbor of New York.....		6,000.00	6,000.00		6,000.00
Permanent International Commission of Congresses of Navigation.....		160,260.00	160,260.00	85,375.03	74,884.97
Total		3,000.00	3,000.00	1,022.50	1,977.50

Funds contributed pursuant to legislation contained in public act of Mar. 4, 1911 (36 Stat., 1352), for the following purposes are not included in the foregoing statement of receipts and expenditures for the reason that it is considered by the War Department as a trust or special fund:

Funds contributed for memorial monument at Germantown, Pa.—

Balance on hand July 1, 1916..... \$25,000.00
Expended during the fiscal year 1917..... 16,000.00

Balance on hand June 30, 1917..... 9,000.00

MISCELLANEOUS PUBLIC WORKS—CIVIL.

Secretary's Office:

Wagon roads, bridges, and trails, Alaska fund.....

Engineer Department:

Survey of northern and northwestern lakes.....

Expenses California Deloris Commission.....

Bridge across Potomac River at Georgetown, D. C.....

Maintenance and repairs of Aqueduct Bridge, District of Columbia.....

Acquiring title to squares 612 and 613, District of Columbia.....

Prevention of deposits, harbor of New York.....

Permanent International Commission of Congresses of Navigation.....

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1890 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balances which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
MISCELLANEOUS PUBLIC WORKS—CIVIL—Continued.							
Engineer Department—Continued.							
International Waterways Commission.....	24,232.08			24,232.08			24,232.08
Preservation of Niagara Falls.....	18,684.42			18,684.42			18,684.42
Total, miscellaneous public works—civil.....	222,449.83	8545,997.26		769,447.09	8331,455.93		437,991.16
<i>Summary, public works—Civil.</i>							
Military parks, etc.....	21,324.76	384,637.00		606,011.76	409,592.64		196,419.10
Monuments.....	284,556.60	5,000.00		289,556.60	9,999.01		279,557.59
Miscellaneous public works—civil.....	223,449.83	545,997.26		769,447.09	831,455.93		437,991.16
Total, public works—civil.....	529,331.19	{ 5,000.00 1,130,684.26 }		1,665,015.45	751,047.58		913,967.87
MISCELLANEOUS.							
<i>National cemeteries.</i>							
Secretary's office:							
Marking graves of Confederate soldiers and sailors who							
died in northern prisons.....	36,895.76			36,895.76	5,000.00		31,895.76
Quartermaster Corps:							
Care, etc., of Confederate burial plots.....		1,250.00		1,250.00	830.43		419.57
Confederate Stockade Cemetery, Johnston's Island,		250.00		250.00	250.00		
Sandusky Bay, Ohio.....		200.00		200.00	200.00		
Confederate Mound, Oakwood Cemetery, Chicago, Ill.		1,800.00		1,800.00	1,800.00		
Lodge, national cemetery, Salisbury, N. C.....		120,000.00		120,000.00	112,624.83		7,375.17
National cemeteries.....		63,120.00		63,120.00	63,120.00		63.00
Pay of superintendents of national cemeteries.....		50,000.00		50,000.00	41,438.77		8,561.23
Headstones for graves of soldiers.....		2,000.00		2,000.00	1,600.00		400.00
Burial of indigent soldiers.....		200.00		200.00			200.00
Burial of indigent patients, Army and Navy Hospital,		12,000.00		12,000.00	11,737.86		262.14
Hot Springs, Ark.....		1,000.00		1,000.00	913.43		86.57
Repairing roads to national cemeteries.....				3,648.47			3,648.47
Monuments or tablets in Cuba and China.....	2,648.47						2,648.47

Andean Battlefield preservation.....	4,500.00	.....	4,500.00	3,380.36	.....	1,110.64
Reinterment of remains of Orman K. Osborn in national cemetery, San Francisco, Cal.....	200.00	.....	200.00	83.63	.....	116.37
Disposition of remains of officers, soldiers, and civil employees.....	107,500.00	.....	107,500.00	87,075.59	.....	20,424.41
Total, national cemeteries.....	39,544.23	.....	403,564.23	320,997.40	.....	73,566.83
<i>Support of national homes.</i>						
Board of Managers, National Home for Disabled Volunteer Soldiers:						
National Homes for Disabled Volunteer Soldiers.....	3,903,900.00	.....	3,903,900.00	3,803,927.23	.....	9,972.77
Buildings and appurtenances.....	97,772.47	.....	97,772.47	.....	.....	97,772.47
National Sanitarium for Disabled Volunteer Soldiers, Hot Springs, S. Dak.....	169,500.00	.....	169,500.00	169,056.21	.....	443.79
Buildings.....	2,945.76	.....	2,945.76	.....	.....	2,945.76
Buildings and appurtenances.....	2,996.55	.....	2,996.55	.....	.....	2,996.55
State or Territorial Homes for Disabled Soldiers and Sailors.....	1,125,000.00	.....	1,125,000.00	1,125,000.00	.....	.....
Total, support of National Homes.....	103,714.78	.....	5,302,114.78	5,187,983.44	.....	114,131.34
<i>Miscellaneous objects.</i>						
Secretary's Office:						
Soldiers' Home interest account.....	25,581.97	.....	127,035.14	102,127.66	.....	24,907.48
Medals of honor for distinguished services.....	783.52	.....	783.52	.....	.....	783.52
Preservation birthplace of Abraham Lincoln.....	1,020.00	.....	1,020.00	1,020.00	.....	.....
Building Government exhibit, Panama Pacific International Exposition, San Francisco, Cal.....	472,934.12	.....	472,934.12	.....	.....	472,934.12
Quartermaster Corps:						
Medals for volunteers, War with Spain.....	3.85	80.70	4.55	.....	\$4.55	.....
Claims for property taken from Confederate officers and soldiers after surrender.....	5,369.05	.....	5,369.05	135.00	.....	5,234.05
Bridge across the Republican River, Fort Riley, Kans.....	30,000.00	.....	30,000.00	.....	.....	30,000.00
Relief of sufferers from floods, tornadoes, and conflagration in the Mississippi and Ohio Valleys, etc.....	23,778.49	.....	23,778.49	3.64	.....	23,774.85
Relief of sufferers from floods in the Mississippi and Ohio Valleys.....	816.05	.....	816.05	.....	.....	816.05
Transportation for refugee American citizens from Mexico.....	52,154.38	19.50	52,153.88	.....	.....	52,153.88
Adjutant General's Department:						
Collecting military records of Revolutionary War.....	1,823.87	.....	1,823.87	.....	.....	1,823.87
Medical Department:						
Artificial limbs.....	65,000.00	.....	65,000.00	59,150.00	.....	5,850.00
Appliances for disabled soldiers.....	1,000.00	.....	1,000.00	700.00	.....	300.00
Trusses for disabled soldiers.....	2,500.00	.....	2,500.00	1,200.00	.....	1,300.00
Engineer Department:						
Survey of Fort Caswell Military Reservation, N. C.....	750.00	.....	750.00	.....	.....	750.00
Running U. S. S. Maine, etc., harbor of Havana, Cuba.....	42,673.96	.....	42,673.96	92.00	.....	42,581.97
Relief of flood sufferers in certain Southern States.....	540,000.00	.....	540,000.00	539,463.48	.....	10,536.52

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1890 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
MISCELLANEOUS—Continued.							
<i>Miscellaneous objects—Continued.</i>							
Relief acts:							
Arrears of pay bounty, etc., certified claims.		\$50,000.00		\$50,000.00	\$22,200.81		\$27,799.19
Pay, etc., of the Army, War with Spain, certified claims.		2,000.00		2,000.00	1,330.23		669.77
Purchase of 3 vessels of light draft.			\$72.58	72.58		\$72.58	
Extra pay to volunteers, War with Spain.		1,312.96		1,312.96	1,312.96		
Extra pay to Regular Army, War with Spain.		114.40		114.40	114.40		
Claims of officers and men of the Army for destruction of private property.		7,876.38		7,876.38	7,671.80		204.58
Claims reported by the Court of Claims under the Bowman and Tucker Acts.		48,329.84		99,221.01	63,906.10		35,314.91
Reimbursement to Le Grand C. Cramer, damages to motor launch.				4,911.64			4,911.64
Relief of heirs of Theodore De Hon.		4,911.64		500.00			500.00
Relief of Little Nelson.		196.00		196.00			196.00
Payment of volunteers, Cayuse Indian war in 1847 and 1848 in Oregon, certified claims.		1,108.83		1,108.83			1,108.83
Relief of persons for damages by explosion at Frankford Arsenal, Pa.		44.49		44.49			44.49
Claims for damages to property in Virginia, War with Spain.		347.00		347.00			347.00
Payments for damages to private property by gun firing.		56.72		56.72			56.72
Relief of persons for damages by fire at Rock Island Arsenal, Ill.		13.35		13.35			13.35
Relief of sufferers from famine in China.		5,563.11		5,563.11			5,563.11
Suppressing hostilities of the Piute Indians in Nevada in 1860.		2,980.00		2,980.00			2,980.00
Investigating claims of American citizens for damages, insurrection in Mexico.		3,165.67		3,165.67			3,165.67
Payments for claims for improvement Fort William H. Seward Military Reservation.		54.00		54.00			54.00
Reimbursement to officers and men of the Army for losses fighting fires on national forests.		2,350.63		2,350.63	43.11		2,307.52
Relief of James Stanton.		1,912.40		1,912.40	1,912.40		

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1890 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
Miscellaneous—Continued.							
<i>Miscellaneous objects—Continued.</i>							
The account for "Pay of the Army, deposit fund," is not included in the foregoing statement of receipts and expenditures of the "Civil establishment," for the reason that it represents the savings of enlisted men of the Army deposited in the Treasury of the United States, and therefore can not be considered receipts and expenditures of Government funds for maintenance of the civil establishment. This account appears on the war ledger as follows: Balance July 1, 1916..... \$2,690,400.91 Deposited during the fiscal year 1917..... 1,486,106.28							
Total.....							
Deposits withdrawn fiscal year 1917.....							
Balance available June 30, 1917.....							
<i>Summary, miscellaneous.</i>							
National cemeteries.....	839,544.23	834,020.00		843,544.23	839,977.40		873,666.83
Support of National Homes.....	103,714.78	5,198,400.00		5,322,114.78	5,187,983.44		114,131.34
Miscellaneous objects.....	727,580.33	1,033,402.36		1,730,982.69	904,555.07	77.13	826,350.49
Total, miscellaneous.....	870,839.34	6,565,822.36		7,436,661.70	6,422,535.91	77.13	1,014,048.66
<i>Summary, civil establishment.</i>							
War Department proper.....	109.39	4,223,731.33		4,223,840.73	2,700,896.46	50.00	1,522,944.26
Public works.....	529,331.19	5,000.00		1,665,015.45	751,047.58		913,967.87
Miscellaneous.....	870,839.34	6,565,822.36		7,436,661.70	6,422,535.91	77.13	1,014,048.66
Total, civil establishment.....	1,400,279.92	5,000.00 11,920,237.96		13,325,517.87	9,874,478.95	127.13	3,450,911.79

MILITARY ESTABLISHMENT.

Support of the Army.

[illegible]

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1880 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balances which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.							
<i>Support of the Army—Continued.</i>							
Quartermaster Corps—Continued.							
Roads, walks, wharves, and drainage.		\$860,534.00		\$860,534.00	\$785,983.46		\$74,550.54
Roads, walks, wharves, and drainage, act June 15, 1917.		5,539,965.00		5,539,965.00	389,200.00		5,150,765.00
Barracks and quarters, Philippine Islands.	\$16,096.14	700,000.00		509,096.14	737,924.53		68,171.61
Construction and repair of hospitals.		509,983.00		509,983.00	397,139.35		112,843.65
Construction and repair of hospitals, act June 15, 1917.		2,115,297.00		2,115,297.00	211,770.00		1,903,497.00
Quarters for hospital stewards.		14,043.00		14,043.00	11,537.12		2,505.88
Shooting galleries and ranges.		49,000.00		49,000.00	27,335.64		21,664.36
Maintenance, Army War College.		10,700.00		10,700.00	9,830.10		869.90
Rent of buildings.		42,039.10		42,039.10	38,720.42		3,318.68
Claims for damages to and loss of private property.	2,214.02	10,000.00		12,214.02	7,475.04		4,738.98
Transportation of rifle teams to national matches.		60,000.00		60,000.00	60,000.00		
Bureau of Insular Affairs:		1,500.00		1,500.00	1,500.00		
Care of insane Filipino soldiers.		300.00		300.00			
Care of insane soldiers, Porto Rico Regiment of Infantry.							
Medical Department:							
Medical and hospital department.		6,094,000.00		6,094,000.00	5,076,515.06		1,017,484.94
Medical and hospital department, act June 15, 1917.		29,780,000.00		29,780,000.00	1,300,000.00		28,480,000.00
Replacing medical supplies.			\$4,222.87	85,801.72			85,801.72
Army Medical Museum.	81,578.85	5,000.00		10,000.00	2,900.00		2,100.00
Library, Surgeon General's Office.		10,000.00		10,000.00	3,443.25		6,556.75
Hospital care, Canal Zone garrisons.		45,000.00		45,000.00	42,000.00		3,000.00
Engineer Department:							
Engineer depots.		37,500.00		37,500.00	36,823.93		676.07
Engineer School, Washington, D. C.		31,000.00		31,000.00	23,994.50		7,005.50
Building, Engineer School, Washington, D. C.		9,000.00		9,000.00			9,000.00
Engineer equipment of troops.		2,374,000.00		2,374,000.00	1,097,775.03		1,276,224.97
Engineer equipment of troops, act June 15, 1917.		36,876,000.00		36,876,000.00			36,876,000.00
Civilian assistants to Engineer officers.		85,000.00		85,000.00	79,001.17		6,998.83
Engineer operations in the field.		1,300,000.00		1,300,000.00	1,087,006.42		212,993.58
Engineer operations in the field, act June 15, 1917.		94,500,000.00		94,500,000.00			94,500,000.00
Contingencies, Engineer Department, Philippine Islands.		4,000.00		4,000.00	4,000.00		
Military surveys and maps, 1917 to Dec. 31, 1918.		200,000.00		200,000.00	87,000.00		113,000.00
Ordnance Department:							
Ordnance service.		503,000.00		503,000.00	471,337.91		31,662.09

Ordnance service, act June 15, 1917.....	42,787.79	2,650,000.00	.....	2,650,000.00	.....	2,650,000.00	.....
Ordnance stores, ammunition.....	.....	10,210,000.00	.....	10,203,787.79	.....	10,203,787.79	.....
Ordnance stores, ammunition, act June 15, 1917.....	.....	131,048,000.00	.....	131,048,000.00	.....	131,048,000.00	.....
Small-arms target practice.....	343,078.97	8,000,000.00	.....	8,343,078.97	.....	1,233,688.47	.....
Small-arms target practice, act June 15, 1917.....	.....	17,500,000.00	.....	17,500,000.00	.....	17,500,000.00	.....
Manufacture of arms.....	134,920.79	5,000,000.00	.....	5,134,920.79	.....	2,927,581.49	.....
Manufacture of arms, act June 15, 1917.....	.....	53,349,000.00	.....	53,349,000.00	.....	53,349,000.00	.....
Ordnance stores and supplies.....	770,149.53	10,000,000.00	.....	11,270,149.53	.....	5,183,735.94	.....
Ordnance stores and supplies, act June 15, 1917.....	.....	106,550,000.00	.....	106,550,000.00	.....	106,550,000.00	.....
National trophies and medals for rifle contests.....	.....	10,000.00	.....	10,000.00	.....	3,464.07	.....
Automatic rifles.....	159,084.46	11,000,000.00	.....	11,159,084.46	.....	10,883,454.42	.....
Automatic rifles, act June 15, 1917.....	.....	65,900,000.00	.....	65,900,000.00	.....	65,900,000.00	.....
Antiaircraft guns, Army.....	.....	250,000.00	.....	250,000.00	.....	250,000.00	.....
Antiaircraft guns, Army, act June 15, 1917.....	.....	760,000.00	.....	760,000.00	.....	760,000.00	.....
Ammunition for antiaircraft guns, Army.....	.....	200,000.00	.....	200,000.00	.....	200,000.00	.....
Ammunition for antiaircraft guns, Army, act June 15, 1917.....	.....	1,640,000.00	.....	1,640,000.00	.....	1,640,000.00	.....
Armored motor cars.....	.....	500,000.00	.....	500,000.00	.....	480,259.20	.....
Armored motor cars, act June 15, 1917.....	.....	8,800,000.00	.....	8,800,000.00	.....	8,900,000.00	.....
Replacing ordnance and ordnance stores.....	373,688.08	.....	708,560.41	.....	.....	1,082,246.49	.....
Provost Marshal General.....	.....	.....	.....	.....	.....	.....	.....
Registration and selection for military service, act June 15, 1917.....	.....	2,658,413.00	.....	2,658,413.00	.....	2,184,913.00	.....
Total, support of the Army.....	2,135,754.32	2,033,514,843.04	717,306.67	2,036,367,906.03	.....	1,678,609,381.87	.....
Repayments in excess of payments.....	.....	.....	.....	717,306.67	.....	.....	.....
Actual expenditures.....	.....	.....	.....	.....	.....	.....	.....
<i>Reserve Corps.</i>	.....	.....	.....	.....	.....	.....	.....
Quartermaster Corps:	.....	.....	.....	.....	.....	.....	.....
Quartermaster supplies, equipment, etc., for reserve officers' training corps.....	.....	1,215,000.00	.....	1,215,000.00	.....	1,215,000.00	.....
Ordnance Department:	.....	.....	.....	.....	.....	.....	.....
Ordnance stores equipment etc., reserve officers' training camps, act June 15, 1917.....	.....	524,000.00	.....	524,000.00	.....	524,000.00	.....
Total, Reserve Corps.....	.....	1,739,000.00	.....	1,739,000.00	.....	1,739,000.00	.....
<i>Military Academy.</i>	.....	.....	.....	.....	.....	.....	.....
Pay of Military Academy.....	.....	899,369.62	.....	899,369.62	.....	899,369.62	.....
Maintenance, United States Military Academy.....	.....	350,873.95	.....	350,873.95	.....	310,736.13	.....
Memorial Hall, West Point, N. Y.....	4,000.00	.....	.....	4,000.00	.....	4,000.00	.....
Total, Military Academy.....	4,000.00	1,240,243.57	.....	1,244,243.57	.....	1,116,577.97	.....
<i>Organized Militia.</i>	.....	.....	.....	.....	.....	.....	.....
Arming and equipping the Militia.....	697,025.86	.....	.....	697,025.86	.....	284,076.10	.....
New arms and equipments for Organized Militia.....	51,987.06	.....	.....	51,987.06	.....	51,987.06	.....

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1930 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.							
<i>Organized Militia—Continued.</i>							
Field artillery for organized Militia.....	\$1,938,850.23			\$1,938,850.23	\$1,743,505.74		\$215,344.49
Exchanging or issuing new pistols, ammunition, etc., Organ- ized Militia.....	44.77			44.77			44.77
Ammunition for field artillery, Organized Militia.....	1,377,454.98			1,377,454.98	1,210,952.70		166,502.28
Encampment and maneuvers, Organized Militia.....	280,950.52			280,950.52	177,347.58		83,602.94
Equipment of Coast Artillery, armories, Organized Militia.....	106,406.33			106,406.33	28,068.86		78,337.47
Total, Organized Militia.....	4,452,719.75			4,452,719.75	3,572,864.64		879,855.11
<i>National Guard.</i>							
Arming, equipping, and training the National Guard.....		\$3,877,240.00		3,877,240.00	1,084,257.31		2,792,982.69
Automatic rifles for National Guard.....		8,500,000.00		8,500,000.00	342,610.27		8,157,389.73
Field artillery for National Guard.....		20,800,000.00		20,000,000.00	922,915.74		19,077,084.26
Supplying and exchanging infantry equipment, National Guard.....		400,000.00		400,000.00	400,000.00		
Ranges for field artillery target practice, National Guard.....		300,000.00		183,919.76	300,000.00		136,080.24
Ammunition for field artillery for National Guard.....		20,000,000.00		20,000,000.00	3,497,683.59		16,502,316.41
Arms, uniforms, equipment, etc., for field service, National Guard.....		3,000,000.00		3,000,000.00	698,199.69		2,301,800.31
Total, National Guard.....		56,077,240.00		56,077,240.00	7,079,596.36		48,997,643.64
<i>Civilian military training.</i>							
Civilian military training camps.....		2,000,000.00		2,000,000.00	827,792.56		1,172,207.44
Civilian military training camps, act June 15, 1917.....		3,440,000.00		3,440,000.00	8,212,508.69		227,490.31
Military training camp, Fort Douglas, Utah.....		30,000.00		30,000.00	21,908.37		8,091.63
Rifle ranges for civilian instruction.....		300,000.00		300,000.00	50,080.22		249,919.78
Ordnance stores and equipments, civilian military training camps, act June 15, 1917.....		3,750,000.00		3,750,000.00			3,750,000.00
Ordnance supplies for military equipment of schools and colleges, act June 15, 1917.....		218,000.00		218,000.00			218,000.00
Total, civilian military training.....		9,738,000.00		9,738,000.00	4,112,288.74		5,625,711.26

Fortifications.

Engineer Department:

Gun and mortar batteries, act of June 15, 1917.....
 Fire control at fortifications.....
 Fire control at fortifications, act of June 15, 1917.....
 Electrical installations at seacoast fortifications.....
 Electrical installations at seacoast fortifications, act of June 15, 1917.....
 Sites for fortifications and seacoast defenses.....
 Searchlights for harbor defense.....
 Searchlights for defensive purposes, act June 15, 1917.....
 Coast Artillery, war instruction.....
 Contingent expenses, seacoast fortifications, act June 15, 1917.....
 Preservation and repair of fortifications.....
 Repair and restoration of defenses of Galveston, Tex.....
 Land defenses in the United States, act June 15, 1917.....
 Repair and protection of defenses, Pensacola, Fla.....
 Repair and protection of defenses, Mobile, Ala.....
 Plans for fortifications.....
 Supplies for seacoast defenses.....
 Preservation and repair of torpedo structures.....
 Sea walls and embankments.....
 Casemates, galleries, etc., for submarine mines.....
 Casemates, galleries, etc., for submarine mines, act June 15, 1917.....
 Roads, trails, water and sewer systems, etc., seacoast fortifications.....

Chief Signal Officer:

Aviation, seacoast defenses.....
 Maintenance, etc., fire-control installations at seacoast defenses.....
 Maintenance, etc., fire-control installations at seacoast defenses, insular possessions.....

Ordnance Department:

Ordnance material (proceeds of sales).....
 Armament of fortifications.....
 Armament of fortifications, act June 15, 1917.....
 Proving ground, Sandy Hook, N. J.....
 Proving grounds, Army, act June 15, 1917.....
 Submarine mines.....
 Submarine mines, act June 15, 1917.....
 Submarine mines in insular possessions.....
 Submarine mines in insular possessions, act June 15, 1917.....
 Radio-dynamic torpedoes.....
 Special aids and appliances for manufacture of arms, ammunition, etc.....

537,805.26	4,980,500.00	5,808,305.28	1,305,681.66	4,202,643.69
140,177.52	2,500,000.00	2,500,000.00	.....	2,500,000.00
36,578.96	1,205,764.00	1,357,973.52	382,104.26	1,025,869.26
.....	3,147,223.00	3,147,223.00	.....	3,147,223.00
.....	110,000.00	146,578.96	28,342.90	3,118,283.06
.....	1,700,000.00	1,700,000.00	.....	1,700,000.00
19,794.84	1,500,000.00	1,519,794.84	1,116,376.19	403,418.65
80,211.08	476,700.00	556,911.08	72,277.01	484,634.07
164.14	5,900,000.00	5,900,000.00	.....	5,900,000.00
.....	2,000.00	2,164.14	1,000.00	1,164.14
.....	1,000,000.00	1,000,000.00	.....	1,000,000.00
15,328.40	500,000.00	515,328.40	198,743.76	316,582.65
.....	303,500.00	303,500.00	52,499.50	251,000.50
226.00	2,060,000.00	2,060,000.00	.....	2,000,000.00
41.03	.....	226.00	226.00	.....
26,252.17	50,000.00	50,000.00	41.03	32,705.00
526.70	80,000.00	105,252.17	17,286.00	53,342.50
13,664.80	93,000.00	106,664.80	51,909.67	176.00
1,705.63	350,000.00	351,705.63	351.70	88,109.04
.....	500,000.00	500,000.00	67,761.22	283,944.41
.....	1,400,000.00	.....	.....	500,000.00
924,213.96	1,460,500.00	2,064,713.96	22,000.00	18,000.00
.....	3,600,000.00	3,600,000.00	228,134.83	1,896,594.26
.....	1,200,000.00	1,200,000.00	122,013.33	3,476,388.67
18,124.83	270,000.00	288,124.83	75,560.00	1,121,450.00
1,164.81	22,500.00	23,664.81	103,474.35	184,660.48
801,819.26	185,217.45	987,034.71	11,337.93	12,308.88
2,601,780.43	53,632,500.00	56,235,280.43	36,204.39	960,832.32
16,554.67	581,205,000.00	581,205,000.00	9,485,116.16	46,760,164.27
379,691.43	253,000.00	271,554.67	107,860.13	881,205,000.00
5,215.45	700,000.00	700,000.00	.....	168,684.64
.....	311,000.00	660,991.43	379,794.98	700,000.00
.....	3,428,330.00	3,428,330.00	.....	310,894.45
.....	158,100.00	1,163,315.45	63,289.02	3,428,330.00
.....	72,000.00	72,000.00	.....	100,000.43
.....	1,167,000.00	1,167,000.00	30,000.00	72,000.00
.....	1,000,000.00	1,000,000.00	8,000.00	1,137,000.00
.....	.....	.....	.....	992,000.00

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1920 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916 to June 30, 1917.	Repayments July 1, 1916 to June 30, 1917.	Aggregate available.	Payments July 1, 1916 to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.							
Fortifications—Continued.							
Ordnance Department—Continued.							
Fortifications in insular possessions.	\$288,502.76	\$5,340,510.00		\$5,600,012.76	\$1,262,503.25		\$4,337,509.51
Fortifications in insular possessions, act June 15, 1917.		6,860,000.00		6,860,000.00			6,860,000.00
Under the Chief of Coast Artillery.							
Fire control in insular possessions.	75,960.49	131,837.00		207,497.49	45,880.00		161,616.80
Under the Board of Ordnance and Fortification.	41,805.84	450,000.00		491,805.84	64,313.58		427,532.26
Board of Ordnance and Fortification.							
Total, fortifications.	6,005,407.50	687,560,915.45		693,566,322.95	15,582,630.11		677,983,692.84
Arsenals.							
Ordnance Department:							
Pleasanton Arsenal, Dover, N. J.		85,500.00		85,500.00	63,000.00		22,500.00
Army Ordnance Factory, Rock Island, Ill.		500,000.00		500,000.00			500,000.00
Springfield Arsenal, Springfield, Mass.		982,200.00		982,200.00	217,662.96		764,537.04
Watertown Arsenal, Watertown, Mass.	2,800.00	32,600.00		35,400.00	25,732.62		9,667.38
Frankford Arsenal, Philadelphia, Pa.		61,500.00		61,500.00	604,500.00		543,000.00
Watertown Arsenal, Watertown, Mass.	19,242.59	938,470.00		927,712.69	96,925.00		830,787.31
San Antonio Arsenal, San Antonio, Tex.		709,725.00		709,725.00	92,200.00		617,525.00
Wadsworth Arsenal, West Troy, N. Y.		92,200.00		92,200.00	328,061.20		170,138.80
Rock Island Arsenal, Rock Island, Ill.	3,874.32	813,700.00		807,574.32	18,000.00		789,525.68
Rock Island Power Plant, Rock Island, Ill.		18,000.00		18,000.00	12,500.00		5,500.00
Proving Ground, Sandy Hook, N. J.		12,500.00		18,000.00	12,900.00		690.00
Sodium nitrate storage.		235,000.00		235,000.00	155,100.00		89,900.00
Ordnance depot, Honolulu, Hawaii.		300,000.00		300,000.00	100,384.00		199,616.00
Ordnance depot, Manila, P. I.	1,081.36			1,081.36	1,081.36		
Testing machine.		15,000.00		15,000.00			15,000.00
Repair of armaments.		350,000.00		350,000.00	14,875.08		335,124.92
Repair of armaments, act June 15, 1917.		400,000.00		400,000.00	313,227.67		86,772.33
Total, arsenals.	26,998.27	5,594,395.00		5,621,393.27	2,107,698.77		3,513,733.50

Military posts, etc.

Military posts, etc.				
Quartermaster Corps:				
Military posts	26,843.11	137,000.00	102,843.11	15,150.28
Military post, Schofield Barracks, Hawaii		1,000,000.00	1,000,000.00	723,554.68
Military prison, Fort Leavenworth, Kans.	39,097.52		39,097.52	32,234.00
Sewerage system, Fort Monroe, Va.		9,359.99	9,359.99	9,359.99
Water supply, Presidio of San Francisco, Cal.	98,937.50		98,937.50	98,937.50
Army supply depot, Fort Mason, Cal.	2.64		2.64	
Supply supply depot, Fort Sam Houston, Tex.		750,000.00	750,000.00	501,200.00
Cavalry post, Territory of Hawaii	19.10			
Repairs to buildings, etc., at Gulf forts.		50,000.00	50,000.00	35,000.00
Target range, Vancouver Barracks, Wash.		100,000.00	100,000.00	
Target range, Fort Bliss, N. Mex.		35,120.00	35,120.00	6,400.00
Barracks and quarters, seacoast defenses.	27,026.67		447,026.67	46,465.80
Seacoast defenses, Philippine Islands and Hawaii.	251,177.26		320,177.26	247,802.28
Buildings depot, Jeffersonville, Ind.		9,500.00	9,500.00	9,500.00
Purchase of land, military reservation, Fort Sam Houston, Tex.		330,000.00	330,000.00	330,000.00
Sites for aviation school, Signal Corps, California.		300,000.00	300,000.00	300,000.00
Land for aviation purposes, Army.		300,000.00	300,000.00	299,991.20
Engineer Department:				
Fort Riley Military Reservation, Kans.	2,641.22		2,641.22	2,641.22
Enlargement of Governors Island, N. Y.	19.04		19.04	19.04
Military structures, Philippine Islands.	200.00		200.00	200.00
Sandy Hook Reservation, N. J.		60,000.00	60,000.00	25,000.00
Building, Engineer School and Post, Washington, D. C.		202,500.00	202,500.00	
Total, military posts, etc.	444,964.06	3,762,479.99	4,207,444.05	2,380,395.71
Miscellaneous.				
Quartermaster Corps:				
Filing equipment for the Army		45,000.00	45,000.00	45,000.00
Support of dependent families of enlisted men		8,250,000.00	8,250,000.00	2,751,087.67
Furnishing commissions for officers of the Army		6,000.00	6,000.00	5,907.35
Engineer Department:				
Maps, War Department		7,500.00	7,500.00	7,500.00
Topographic maps, War Department		35,000.00	35,000.00	35,000.00
Ordnance Department:				
International rifle competition, Camp Perry, Ohio	2,202.38		2,202.38	
Total, miscellaneous	2,202.38	8,343,500.00	8,345,702.38	6,547,319.68
Summary, Military Establishment.				
Support of the Army	2,135,756.32	2,033,514,843.04	2,035,650,596.36	1,678,999,831.87
Reserve Corps		1,739,000.00	1,739,000.00	1,739,000.00
Military Academy	4,000.00	1,240,243.57	1,244,243.57	1,127,665.60
Organized Militia	4,452,719.75		4,452,719.75	879,865.11
National Guard		56,077,240.00	56,077,240.00	48,997,643.64
Civilian military training		9,738,000.00	9,738,000.00	5,635,711.26

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1930 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.							
<i>Summary, Military Establishment—Continued.</i>							
Fortifications.....	\$6,005,407.50	\$687,560,915.45		\$968,566,322.95	\$15,582,630.11		\$677,983,692.84
Arsenals.....	26,998.27	5,594,395.00		5,621,393.27	2,107,698.77		3,513,733.50
Military posts.....	444,964.06	3,762,476.99		4,207,444.05	2,380,365.71		1,827,048.34
Miscellaneous.....	2,202.38	8,343,500.00		8,345,702.38	5,547,319.68		2,798,382.70
Total, Military Establishment.....	13,072,048.28	2,807,570,617.05		2,820,642,665.33	308,450,560.47		2,422,192,074.86
RIVERS AND HARBORS.							
<i>Engineer Department:</i>							
Breakwater from Mount Desert to Porcupine Island, Me.	43,256.53			43,256.53	2,900.88		40,285.65
Harbor at Rockland, Me.	3,500.00		\$0.52	3,500.52			3,500.52
Basin Harbor Bar, Me.	4,000.00			4,000.00			4,000.00
Harbor at Burlington, Vt.	2,000.00	22,000.00	45	24,000.45		\$1,490.00	24,000.45
Harbor at St. Albans, Vt.			1,490.00	1,490.00			
Harbor at Gloucester, Mass.	9,300.00			9,300.00	5,500.00		3,800.00
Harbor at Nahant, Mass.	79,526.97	10,000.00		17,000.00	5,000.00		12,000.00
Harbor at Boston, Mass.	55,200.00	100,000.00		179,526.97	67,286.40		112,224.57
Harbor at Lynn, Mass.	26,500.00			26,500.00	48,800.00		6,400.00
Harbor at Plymouth, Mass.		20,000.00		26,500.00			26,500.00
Harbor at Newburyport, Mass.	15,600.25			20,000.00	7,250.00		12,750.00
Harbor at Plymouth and Provincetown, Mass.	8,700.00		18	16,600.43			16,600.43
Harbor of refuge at Sandy Bay, Cape Ann, Mass.				8,700.00	200.00		8,500.00
Pollock Rip Channel, Mass.		150,000.00		150,000.00	114,072.48		36,924.52
Dorchester Bay and Neponset River, Mass.	300.00			300.00	60.40		249.60
Harbor at Newport, R. I.	10,010.64		21,749.45	31,760.09			31,760.09
Harbor at Block Island, R. I.	10,197.73			10,197.73			10,197.73
Harbor at Great Salt Pond, Block Island, R. I.	27,200.00			27,200.00			27,200.00
Harbor at Bridgeport, Conn.	10,000.00			10,000.00			10,000.00
Harbor of refuge, Duck Island Harbor, Conn.	660.19	71,000.00		71,660.19	9,985.00		58,382.12
Harbors at Frying Pan River, Stamford, Conn.					13,308.07		
Greenwich and Westport and Saugatuck River, Conn.	12,935.11			12,935.11	10,500.00		2,435.11
Harbor at New Haven, Conn.	2,166.96			2,166.96	1,099.79		1,070.17
Harbor at New London, Conn.	1,000.00	170,000.00		171,000.00	115,500.00		56,500.00
Harbor at Norwalk, Conn.	4,004.00	5,000.00		9,004.00	4,004.00		5,000.00

Harbor at Milford, Conn.	7,826.54	7,826.54	100,520.00	10,575.80	7,826.54
Harbor at Duckliff, N. Y.	100,520.00	100,520.00	441,382.74	80,847.08	90,944.86
New York Harbor, N. Y.	151,862.74	151,862.74	10,000.00	19,000.00	581,015.69
Harbor at Tarrytown, N. Y.			10,000.00	19,000.00	10,000.00
Harbor at Great Sodus Bay, N. Y.			66,244.12	2,798.43	68,566.69
Black Rock Channel and Tonawanda Harbor, N. Y.			140,000.00	15,126.14	140,000.00
Harbor at Buffalo, N. Y.	15,126.64			66,971.67	160,566.69
Black Rock Harbor, N. Y.	64,019.37	1,951.80		100.00	160,566.69
Wallabout Channel, N. Y.	700.00	219.32			400.00
Harbor at Pultneyville, N. Y.	863.24				1,072.56
Barsat Port Jefferson, Matinecock, Huntington, Glen-cove, Flushing Bay, Conarsie Bay, and Sag Harbor, N. Y.					
Harbor at Plattsburg, N. Y.	86,137.45		11,000.00		86,137.45
Harbor at Rondout and Peekskill, N. Y.	6,404.26	.45	5,250.00		11,860.06
Harbor at Larchmont, N. Y.	4,400.00	223.73		399.76	11,264.56
Harbor at Echo Bay, N. Y.	2,822.94				4,723.73
Harbor at Saugerties, N. Y.	3,611.06	11,250.00		499.75	1,903.19
Harbor at Oswego, N. Y.	1,901.57	100,000.00		3,000.30	11,760.76
Harbor at Little Sodus Bay, N. Y.	10,718.79	12,000.00		10,718.79	90,000.00
Harbor at Charlotte, N. Y.	263.02	150,000.00		8,000.00	1,255.02
Channel in Gowanus Bay, N. Y.	20,033.47			83,673.23	86,230.26
Hempstead Harbor, N. Y.	1,000.00			21,676.70	86,230.26
Jamaica Bay, N. Y.	516,522.93			4,196.77	495,146.73
Sheepshead Bay, N. Y.	4,196.77			10,784.60	8,560.02
Great South Bay, N. Y.	10,784.60				7,501.06
Harbor at Ogdensburg, N. Y.	272.45			272.45	10,000.00
Tonawanda Harbor and Niagara River, N. Y.	20,000.00			10,007.34	10,000.00
Harbor at Cape Vincent, N. Y.	6,000.00			27,500.00	6,000.00
Harbor at Fort Jefferson, N. Y.	27,500.00			6,996.50	1.50
Harbor at Port Chester, N. Y.	7,000.00				583,891.92
Harbor at Manucock, N. Y.	500,000.00				
Arthur Kill, N. Y. and N. J.	53,891.92				
Keyport Harbor, Matamora Creek, Raritan, South and Elizabeth Rivers and Shoal Harbor, and Compton Creek and Chesapeake Creek, N. J.					
Harbor at Erie, Pa.	50,018.73	4,518.06	10,000.00		64,534.79
Cold Spring Inlet, N. J.	3,033.44		10,000.00	2,000.00	11,033.44
Ice Harbor at Marcus Hook, Pa.	4,602.66		60,000.00	23,502.06	40,000.00
Harbor at Pittsburgh, Pa.			2,500.00	2,000.00	1,000.00
Harbor at Wilmington, Del.			30,000.00	26,976.10	500.00
Harbor at Baltimore, Md.	10,900.00	4,323.28			23.30
Hobbs at Hockahall, Queenstown, Chatham, and Cum-bidge, and Chester, Choptank, Warrick, Pocomoke, La Pate, and Wicomico, and Manokin Rivers and Tuck Creek, Md.					15,223.28
Thames Harbor, Md.	1,500.00		14,000.00	5,800.00	8,500.00
Harbor at Norfolk, Va.	7,720.00	70.27			7,790.27
Harbor at Morehead City, N. C.	60,622.62		60,622.62	4,854.68	56,767.94
Shallow Bay, N. C.	2,000.00		2,000.00	2,000.00	
Harbor of refuge, Cape Lookout, N. C.	228,944.50		828,944.50	670,999.50	148,045.00
Winyah Bay, S. C.	624.25		100,000.00	45,074.80	56,549.45

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1920 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
RIVERS AND HARBORS—Continued.							
Engineer Department—Continued.							
Harbor at Charleston, S. C.	\$2,356.10	\$80,000.00		\$82,356.10	\$68,311.35		\$14,044.75
Harbor at Darien, Ga.		4,000.00		4,000.00	4,000.00		
Harbor at Savannah, Ga.	4,081.19	545,000.00		549,081.19	279,454.13		269,627.06
Harbor at Brunswick, Ga.		36,250.00		36,250.00	33,000.00		3,250.00
Harbor at Key West, Fla.	11,500.00			11,500.00	700.00		10,800.00
Harbor at Fernandina, Fla.	23,239.98			23,239.98			23,239.98
Channel from Apalachicola River to St. Andrews Bay, Fla.	175.00	10,000.00		10,175.00	9,692.23		482.77
Hillsboro Bay, Fla.		325,000.00		325,000.00	125,297.77		199,702.23
Harbor at Pensacola, Fla.	3,905.00	20,000.00		23,905.00	22,803.62		1,101.38
Sarasota Bay, Fla.	16,494.42	2,500.00		18,994.42	2,282.61		16,711.81
Tampa Bay, Fla.	6,933.99	5,000.00		11,933.99	150.00		11,783.99
Harbor at Miami, Fla.	98,000.00	140,000.00		238,000.00	58,000.00		180,000.00
Harbor at St. Petersburg, Fla.	1,000.00	14,500.00		15,500.00	58,222.87		15,277.13
Charlotte Harbor, Fla.	8,414.96		\$6.20	8,421.16			8,421.16
Harbor at Mobile, Ala.		155,000.00		155,000.00	116,973.94		38,026.06
Channel connecting Mobile Bay and Mississippi Sound, Ala.	500.00	5,000.00		5,500.00	1,500.00		4,000.00
Lake Pontchartrain and Pass Manchac, La.	3,500.00		500.00	4,000.00			4,000.00
Harbor at Biloxi, Miss.	1,116.18	6,000.00		7,116.18	4,824.37		2,291.81
Harbor at Pascagoula, Miss.	1,000.00	80,000.00		81,000.00	60,941.16		20,058.84
Harbor at Gulfport, Miss.		85,000.00		85,000.00	71,683.37		13,316.63
Houston Ship Channel, Tex.	59.30	250,000.00		250,059.30	196,673.89		54,485.41
Galveston Ship Channel and Buffalo Bayou, Tex.	1,626.78	185,000.00		186,626.78	63,619.77		123,007.01
Channel from Galveston Harbor to Texas City, Tex.	53,619.77	50,000.00		103,619.77	15,000.00		88,619.77
Channel to Port Bolivar, Tex.	25	625,000.00		625,025	112,067.04		512,957.96
Harbor at Galveston, Tex.	1,516.92	590,000.00		591,516.92	204,054.75		387,462.17
Harbor at Galveston, Tex.		66,000.00		66,000.00	22,400.00		43,600.00
Sabine Pass, Tex.					8,000.00		8,000.00
Harbor at Cleveland, Ohio.	89,241.26			89,241.26	7,100.00		82,141.26
Harbor at Ashtabula, Ohio.	22,675.00			22,675.00	112,067.04		89,387.96
Harbor at Lorain, Ohio.	17,647.34			17,647.34	204,054.75		186,407.41
Harbor at Fairport, Ohio.	5,226.01			5,226.01	22,400.00		17,173.99
Harbor at Sandusky, Ohio.					7,100.00		7,100.00
Harbor at Toledo, Ohio.		10,000.00		10,000.00	2,959.78		7,040.22
Harbor at Port Clinton, Ohio.		20,000.00		20,000.00	7,700.00		12,300.00
Harbor at Huron, Ohio.		1,000.00		1,000.00	15,911.17		14,911.17
Harbor at Vermilion, Ohio.		2,500.00		2,500.00	2,600.00		4,100.00
Indiana Harbor, Ind.	54,132.65	400,000.00		454,132.65	37,682.65		416,450.00

Harbor at Michigan City, Ind.	146,515.96	20,000.00	20,000.00	2,092.65	11,997.85
Harbor at Chicago, Ill.		714,800.00	896,515.96	146,515.96	714,800.00
Harbor at Milwaukee, Wis.		10,000.00	10,000.00	5,000.00	11,000.00
Harbor at Calumet, Ill.		25,000.00	25,000.00		25,000.00
Harbor at Chaboygan, Mich.	4,081.72		4,081.72		4,081.72
Harbor at Manistee, Mich.	168,851.15	14,000.00	168,851.15	1,903.01	12,800.00
Harbor at Petoskey, Mich.				86,664.78	82,666.37
Harbor at Holland, Mich.		5,000.00	5,000.00	7.64	492.86
Harbor at Grand Haven, Mich.		71,780.00	71,780.00	4,000.00	1,000.00
Harbor at Alpena, Mich.		125,000.00	125,000.00	15,000.00	66,780.00
Harbor at Charlevoix, Mich.		2,000.00	2,000.00		178,000.00
Harbor at Frankfort, Mich.		2,000.00	2,000.00		2,000.00
Harbor at Refuge at Grand Marais, Mich.		5,000.00	5,000.00	1,968.70	3,002.40
Harbor at Marquette, Mich.		10,000.00	10,000.00	9,960.89	3,001.80
St. Joseph Harbor and River, Mich.		36,500.00	36,500.00	8,000.00	28,500.00
Harbor at Marquette, Mich.	166,500.82		166,500.82	96,806.66	66,696.17
Harbor at Refuge, Marquette Bay, Mich.	2,374.25		2,374.25		2,374.25
MacInaw Harbor, Mich.					700.00
Harbor at Ludington, Mich.		250,000.00	250,000.00	33,000.00	217,000.00
Harbor at Muskegon, Mich.		7,500.00	7,500.00	3,500.00	4,000.00
Harbor at South Haven, Mich.		10,400.00	10,400.00	6,900.00	4,000.00
Harbor at Saugatuck and Kalamazoo River, Mich.		4,000.00	4,000.00		4,000.00
Harbor at Ontonagon, Mich.		9,000.00	9,000.00	7,000.00	2,000.00
Warroad Harbor and River, Minn.	46.96	2,000.00	2,000.00	500.00	1,500.00
Harbor at Grand Marais, Minn.	3,399.43	9,000.00	9,399.43	4,298.43	1,646.66
Zippel Bay, Lake of the Woods, Minn.	28.88	1,000.00	1,000.00	500.00	500.00
Menominee Harbor and River, Mich. and Wis.		20,400.00	20,400.00	1,000.00	19,400.00
Lake Traverse, Minn. and S. Dak.	378.17		314,718.17	98,816.66	215,892.71
Harbor at Duluth, Minn., and Superior, Wis.	91,719.27	222,000.00	45,000.00	20,000.83	24,999.37
Harbor at Milwaukee, Wis.	34,000.00	11,000.00	1,673.04	1,673.04	
Harbor at Manitowoc, Wis.	32,113.86		32,113.86	5,000.00	
Harbor at Kewaunee, Wis.					
Harbor at Port Wing, Wis.					
Harbor at Sheboygan, Wis.	10,289.47	18,000.00	10,289.47	3,000.00	7,289.47
Harbor at Green Bay, Wis.	2,494.86	2,500.00	2,494.86	2,997.07	14,497.73
Harbor at Port Washington, Wis.			3,751.08	2,000.00	500.00
Harbor at Algoma, Wis.	3,761.06	3,500.00	3,761.06	2,500.00	1,261.06
Harbor at Two Rivers, Wis.		200,000.00	200,000.00	20,000.00	180,000.00
Harbor at Racine, Wis.			4,539.73		4,539.73
Harbor at San Luis Obispo, Cal.	324.75				
Harbor at San Pedro, Cal.	34,003.30	220,000.00	264,003.19	10,500.00	4,000.00
Harbor at San Diego, Cal.	30.40	15,000.00	15,000.00	9.63	24,990.37
Harbor at San Francisco, Cal.	13,500.00	450,000.00	463,500.00	409,284.67	54,215.33
Humoldt Harbor and Bay, Cal.	50,217.37	105,500.00	155,717.37	66,444.19	89,273.18
San Pablo Bay, Cal.	5,660.76		8,407.37		8,407.37
Sausalito Harbor, Cal.		575,000.00	575,000.00	2,500.00	572,500.00
Los Angeles Harbor, Cal.		106,500.00	106,500.00	30,336.72	76,163.28
Harbor at Astoria, Ore.	685.16				
Norfolk Bay, Ore.		40,000.00	178,917.27	148,110.97	30,797.40
Tillamook Bay, Ore.	11,673.61		81,673.61	54,772.04	27,901.61
Harbor at Coalinga, Calif.		70,000.00			
Harbor at Bellingham, Wash.	2,391.01		2,391.01	2,100.00	291.01

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Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
RIVERS AND HARBORS—Continued.							
Engineer Department—Continued.							
Harbor at Olympia, Wash.	\$5,838.68			\$5,838.68	\$2,501.93		\$3,336.75
Harbor at Tacoma, Wash.	12,963.86			12,963.86	10,000.00		2,963.86
Grays Harbor and Chehalis River, Wash.	200.44	\$30,000.00		30,200.44	27,206.96		3,993.48
Harbor at Hilo, Hawaii.	299,354.10			299,354.10	124,434.91		164,919.19
Harbor at Kahului, Hawaii.		110,000.00		110,000.00	15,000.00		95,000.00
Harbor at Honolulu, Hawaii.		105,800.00		105,800.00			105,800.00
Harbor at San Juan, Porto Rico.		10,000.00		10,000.00	7,000.00		3,000.00
Saco River, Me.	7,000.00			7,000.00	2,000.00		5,000.00
St. Croix River, Me.	8,000.00		\$11,891.65	19,891.65			19,891.65
Georges River, Me.		10,000.00		10,000.00	1,000.00		9,000.00
Pemosee River, Me.	2,000.00			2,000.00	1,000.00		1,000.00
Narrows of Lake Champlain, N. Y. and Vt.	3,000.00		200.00	3,200.00			3,200.00
Weymouth River, Mass.	1,000.15	215,000.00		216,000.15	12,299.79		203,700.36
Taunton River, Mass.	8,849.35			8,849.35			8,849.35
Mystic and Malden Rivers, Mass.	89,200.00			89,200.00	2,600.00		86,600.00
Merrimack River, Mass.		10,000.00		10,000.00			10,000.00
Providence River and Harbor, R. I.		327,800.00		401,561.37	83,410.23		318,151.14
Pawtucket River, R. I.	73,761.37			73,761.37			73,761.37
Pawcatuck River, R. I. and Conn.	30.33	1,000.00		1,000.00	200.00		800.00
Thames River, Conn.	5,000.00	15,000.00		20,000.00	8,500.00		11,500.00
Housatonic River, Conn.		12,000.00		12,000.00	12,000.00		
Thames River, Conn.		9,000.00		9,000.00			9,000.00
Thames River, N. Y.		250,000.00		250,000.00	41,987.20		208,012.80
Hudson River, N. Y.		640,000.00		640,000.00	272,089.47		367,910.53
Albany River, N. Y.	4,571.36			4,571.36	4,571.36		
Bronx River, N. Y.	33,522.22	250,000.00		283,522.22	53,483.77		230,038.45
Brown's Creek, N. Y.	7,826.31			7,826.31			7,826.31
Wappinger Creek, N. Y.	3.18	3,500.00		3,503.18			3,000.00
Removing obstructions in East River and Hell Gate, N. Y.							
Newtown Creek, N. Y.	42,093.71			42,093.71	10,849.12		31,244.59
East Chester Creek, N. Y.	33.15	10,000.00		10,033.15	489.14		9,544.01
East River, N. Y.		6,000.00		6,000.00			6,000.00
Abasco Creek, N. Y.		200,000.00		200,000.00	29,972.50		170,027.50
Coburns River, N. J.		1,600.00		1,600.00			1,600.00
Alloway Creek, N. J.	3,750.00			3,750.00	1,400.00		2,350.00
Manlius Creek, N. J.	4,850.00			4,850.00	2,850.00		2,000.00
Manlius Creek, N. J.	3,705.00	10,000.00		13,705.00	1,735.00		11,970.00

Oldmans Creek, N. J.	1,000.00			1,000.00			1,000.00
Salem River, N. J.		10,000.00		10,000.00			7,000.00
Woodbridge Creek, N. J.		3,000.00		3,000.00			2,000.00
Maurice River, N. J.		10,000.00		10,000.00			1,000.00
Blackensock River, N. J.		6,000.00		18,016.92			6,000.00
Woodbury Creek, N. J.		6,000.00		11,000.00			18,016.92
Toms River, N. J.		2,000.00		3,726.00			9,500.00
Delaware River, Pa. and N. J.		2,165,000.00		2,283,215.56			8,550.00
Puassalo River, N. J.		118,215.06		20,000.00			2,046,786.65
Carlian Bay, N. J.		20,000.00		20,000.00			212,007.55
Raccoon Creek, N. J.		5,000.00		5,000.00			19,000.00
Cooper River, N. J.		5,000.00		5,000.00			4,250.00
Absecon Inlet, N. J.		5,000.00		5,000.00			3,400.00
Shrewsbury River, N. J.		25,000.00		10,000.00			17,000.00
Monongahela River, Pa.	16,945.63			46,425.63			
Allegheny River, Pa.	800,737.53			315,737.53			18,032.55
Dam at Herrs Island, Allegheny River near Pittsburgh, Pa.							287,387.53
Chester River, Pa.	18,425.26			2,000.00			20,425.26
Pier in Delaware Bay near Lewes, Del.		3,000.00		3,000.00			2,900.00
Little River, Del.		3,000.00		3,000.00			10,000.00
Leipsic River, Del.		5,000.00		1,500.00			2,000.00
Broad Creek River, Del.		1,500.00		25,500.00			4,000.00
St. Jones River, Del.	25,500.00			25,500.00			500.00
Smyrna River, Del.	15,000.00			25,500.00			28,500.00
Broadkill River, Del.	1,000.00			1,000.00			3,150.00
Inland waterway between Rehoboth Bay and Delaware Bay, Del.							
Nantuxco River, Del. and Md.	12,800.00			50,000.00			37,050.00
Appoquinimink, Murderkill, and Mispillon Rivers, Del.		5,000.00		15,000.00			3,000.00
Big and Little Elk Rivers, Md.		5,500.00		15,000.00			2,900.00
Broad Creek, Md.	16,100.00			20,200.00			2,000.00
Susquehanna River near Havre de Grace, Md.	21,200.00			44,275.37			19,285.07
Palapasco River, Md.	54,876.37			5,033.76			2,437.76
Frederick River, Md.				5,457.61			2,437.76
Potomac River, Md.				41,000.00			80,068.50
Anacostia River, D. C.	9,000.00			30,000.00			5,000.00
Appomattox River, Va.	25,000.00			5,500.00			2,000.00
James River, Va.	2,000.00			1,000.00			1,000.00
York, Mataponi, and Pamunkey Rivers, Ocoquan, and Lower Machodoc, Nantuxin, Aquia, and Carvers Creeks, Va.		1,000.00		1,000.00			
Omatoock River, Va.	2,900.00			17,900.00			1,000.00
Blackwater River, Va.	1,000.00			2,000.00			2,000.00
James River, Va.	2,000.00			190,000.00			180,023.87
Rappahannock River, Va.		150,000.00		80,000.00			25,000.00
Inland Waterway from Norfolk, Va., to Beaufort Inlet, N. C.		30,000.00					
Smiths Creek, N. C.		1,000,000.00		610,000.00			390,000.00
Big Sandy River, W. Va. and Ky.	470.27			1,523.96			1,523.96
				4,170.27			4,170.27

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Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
RIVERS AND HARBORS—Continued.							
Engineer Department—Continued.							
Waterways connecting Core Sounds and Beaufort Harbor, N. C.		\$2,000.00		\$2,000.00	\$2,000.00		\$3,568.45
New River and Waterways to Beaufort, N. C.	\$5,088.45	6,000.00		11,088.45	7,500.00		
Waterway connecting Swan Quarter Bay with Deep Bay, N. C.	2,500.00						
Moherrin River, N. C.		2,500.00		2,500.00			2,500.00
Fishing Creek, N. C.		1,000.00		1,000.00			2,500.00
Cape Fear River, N. C.		218,000.00		218,000.00	187,669.91		1,000.00
Beaufort Inlet, N. C.		10,000.00		10,000.00	10,000.00		30,330.09
Roanoke River, N. C.	1,700.00			1,700.00			1,700.00
South River, N. C.	2,187.50			2,187.50			2,187.50
Shallow River, N. C.	500.50			500.50			500.50
Bay River, N. C.		1,000.00		1,000.00			1,000.00
Swift Creek, N. C.		1,000.00		1,000.00			1,000.00
Pamlico and Tar Rivers, N. C.		4,500.00		4,500.00	4,499.00		1.00
Northeast, Black, and Cape Fear Rivers, N. C.		8,500.00		8,500.00	2,099.00		6,401.00
Neuse and Trent Rivers, N. C.		2,000.00		2,000.00	2,000.00		
Waccamaw and Little Pedee Rivers, N. C. and S. C.	109.37	8,500.00		8,609.37	2,386.20		6,223.17
Waterway from Pamlico Sound to Beaufort Inlet, N. C.		6,500.00		6,500.00	6,500.00		
Great Pedee River, S. C.		5,000.00		5,000.00	3,000.00		2,000.00
Inland waterway between Savannah, Ga., and Beaufort, S. C.		2,500.00		2,500.00	2,500.00		
Santee, Wateree, and Congaree Rivers, S. C.	4,088.64	65,000.00		69,088.64	32,567.92		26,520.72
Waterway between Charleston and Alligator Creek, S. C.		15,000.00		15,000.00	14,000.00		1,000.00
Savannah River, Ga.	3,655.74	62,000.00		65,655.74	29,308.00		36,347.74
Cowhead River, Ga.	554.22			554.22			554.22
Savilla River, Ga.	1,192.67			1,192.67	1,192.67		
Flint River, Ga.		60,000.00		60,000.00	27,414.08		32,585.92
Altamaha, Oconee, and Ocmulgee Rivers, Ga.		60,000.00		60,000.00	43,800.00		16,200.00
Channel between St. Johns River and Cumberland Sound, Ga. and Fla.		1,000.00		1,000.00	341.18		658.82
Coosa River, Ga. and Ala.		98,000.00		98,000.00	16,502.43		81,497.57
Chattahoochee River, Ga. and Ala.		120,000.00		120,000.00	59,566.59		60,433.41
Waterway between Savannah, Ga., and Fernandina, Fla.		40,000.00		40,000.00	22,500.00		17,500.00
Apalachicola River, Fla.		6,000.00		6,000.00	4,900.00		1,100.00
Withlacoochee River, Fla.		5,000.00		5,000.00			5,000.00

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RIVERS AND HARBORS—Continued.							
Engineer Department—Continued.							
Bayou Terrebonne, La.....		\$3,000.00		\$3,000.00	\$900.00		\$2,800.00
Bayou Teche, La.....		10,000.00		10,000.00	5,000.00		5,000.00
Atchafalaya River, La.....		50,000.00		50,000.00	700.00		49,300.00
Calcasieu River and Pass, La.....		2,500.00		2,500.00	2,500.00		
Bayou Vermillion and Mermentau River, La.....		13,000.00		13,000.00	7,200.00		5,800.00
Bayou Grossetete, La.....		5,000.00		5,000.00	4,500.00		500.00
Johnsons Bayou, La.....	\$400.00	2,500.00		3,300.00	3,107.41		192.59
Bayou Queue de Tortue.....	2,937.15	3,000.00	\$6,300.00	12,257.15			12,257.15
Inland waterway from Mermentau River to Sabine River, La. and Tex.....	263,513.85			263,513.85	4,000.00		269,513.85
Cypress Bayou and waterways between Jefferson, Tex., and Shreveport, La.....		5,000.00		5,000.00	5,000.00		
Sabine-Nueces Canal, Tex.....		20,000.00		20,000.00	18,614.38		1,385.62
Trinity River, Tex.....		300,000.00		300,000.00	6,920.97		293,079.03
Mobile River, Tex.....	248.76	175,000.00		175,248.76	34,938.76		140,309.99
Grimes River, Tex.....	41.26	215,000.00		215,041.26	61,498.46		153,542.80
Port Aransas, Tex.....	501.78	100,000.00		100,501.78	39,984.26		60,517.52
Inland waterway on coast of Texas.....	2.26	100,500.00		98,502.25	99,000.00		12,492.25
Channel from Aransas Pass to Corpus Christi, Tex.....		15,000.00		15,000.00	14,875.00		125.00
West Galveston Bay channels and adjacent streams, Tex.....		30,000.00		30,000.00	17,000.00		13,000.00
Black and Current Rivers, Ark and Mo.....		18,000.00		18,000.00	2,530.18		15,469.82
Omachita River, Ark. and La.....	7,000.00	499,000.00		506,000.00	137,511.58		368,488.42
Saline River, Ark.....	378.91			8,000.00	378.91		
White River at Duval Bluff, Ark.....	8,000.00			8,000.00			
St. Francis River, Ark.....		9,500.00		9,500.00	2,911.15		6,588.85
Arkansas River, Ark.....		234,700.00		234,700.00	100,203.01		134,496.99
White River, Ark.....		30,500.00		30,500.00	6,267.65		24,232.35
Cumberland River above Nashville, Tenn.....	2,605.54	5,000.00		7,605.54	4,280.63		3,324.91
Cumberland River below Nashville, Tenn.....	11,478.26	708,000.00		716,478.26	188,994.76		527,483.49
Tennessee River below Chattanooga, Tenn., Ala., and Ky.....			6,777.00	6,777.00			6,777.00
Ohio and Forked Deer Rivers, Tenn.....	1,619.66			1,619.66		\$1,619.66	
Clinch, Hiwassee, and Holston Rivers, Tenn.....	570.57			570.57		6.00	560.97
Tennessee River, Tenn., Ala., and Ky.....	16,941.81	944,000.00		960,941.81	318,908.72		641,933.08
Kentucky River, Ky.....	88,333.84			88,333.84	64,863.46		23,470.38
Ohio River.....	32,978.20	509,500.00		542,478.20	91,744.35		450,733.85
Ohio River below Pittsburgh, Pa.....	1,672,248.10	5,000,000.00		6,672,248.10	2,022,850.07		4,649,398.03

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Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
RIVERS AND HARBORS—Continued.							
Engineer Department—Continued.							
Swinomish Slough, Wash.	\$6,690.00			\$6,690.00	\$987.45		\$5,711.55
Willapa River and Harbor, Wash.	26,802.57	\$100,000.00		126,802.57	1,500.00		125,302.57
Grays River, Wash.		500.00		500.00	500.00		
Columbia River Bridgeport and Kettle Falls, Wash.			\$230.00	230.00			230.00
Puget Sound, Wash.	17,933.62			17,933.62	14,872.99		3,060.63
Hoquiam River, Wash.	1,365.42			1,365.42			1,365.42
St. Michael Canal, Alaska.	994.84			994.84			994.84
Yukon River, Alaska.	999.96			999.96			999.96
Emergencies in river and harbor works.					9,635.83		95,053.63
Preservation and maintenance of river and harbor works.	104,689.46			104,689.46			323.70
Examinations, surveys, and contingencies of rivers and harbors.			323.70	323.70			
Removing sunken vessels or craft obstructing or en-	6,933.04	350,000.00		356,933.04	156,724.57		200,208.47
dangering navigation, indefinite.							
Operating and care of canals and other works of naviga-		68,439.99		68,439.99			
tion, indefinite.		2,435,173.82		2,435,173.82	2,435,173.82		
Rebaid to lessees of land and water power, Muskingum							
River, Ohio.	292.43	653.72		856.15			856.15
Claims for damages by collision, river and harbor works.		1,589.90		1,589.90			141.47
Maintenance and improvement of existing river and							
harbor works.	17,162,144.88	221.91		17,162,144.88	9,424,965.46		7,737,178.42
Relief of Theodore Bagge for injuries.				221.91	221.91		
Relief of Mrs. Joseph Cameron, widow of Joseph Cam-							
eron, for injuries.		242.00		242.00	242.00		
Reimbursement to John Simpson.		100.00		100.00	100.00		
Relief of Drs. Blair and Blake, Dr. W. J. Maxwell, Dr.							
R. C. Evans, and J. B. Blalock.		429.15		429.15	429.15		
Relief of the M. A. Sweeney Shipyard's & Foundry Co.		2,635.00		2,635.00	2,635.00		
Relief of Thomas J. Rye.		500.00		500.00	500.00		
Relief of Gottlieb Schlect.		499.20		499.20	499.20		
Relief of Maurice D. Higgins.		499.20		499.20	499.20		
Relief of heirs and legal representatives of Valentine							
Brusch.		499.20		499.20	499.20		
Total, rivers and harbors.	25,854,076.36	66,244.12	134,784.62	70,942,123.19	66,244.12		40,930,298.98
Repayments in excess of payments.		44,887,018.99			29,935,830.40	\$9,809.69	
Actual expenditures.					134,784.62		
					29,801,045.78		

Funds contributed pursuant to legislation contained in the river and harbor acts of June 25, 1910; July 25, 1910; Feb. 27, 1911; July 25, 1912; July 26, 1912; Mar. 4, 1913; and Mar. 4, 1915, for the following purposes are not included in this foregoing statement of receipts and expenditures, for the reason that they are considered by the War Department as trust or special funds:

Funds contributed for improvement of—

Charlotte Harbor, Fla. (act July 26, 1912).....
 Nehalem Bay, Ore. (act July 25, 1912).....
 Tillamook Bay and Bar, Ore. (act Mar. 3, 1915).....
 Funds contributed for dredging at Bay City, Ore. (act Mar. 4, 1915).....
 Funds contributed for improvement of—
 Payallup Waterway, Tacoma Harbor, Wash. (act Mar. 4, 1915).....
 Grays Harbor, Wash. (act Mar. 4, 1915).....
 Niagara River, N. Y. (act July 25, 1912).....
 Mississippi River at Gayoso Bend, Mo. (act Mar. 4, 1915).....
 Mississippi River in Reelfoot Levee District, Ky. (act Mar. 4, 1915).....
 Mississippi River in Upper St. Francis Levee District, Mo. (act Mar. 4, 1915).....
 Red River below Fulton, Ark. (act Mar. 4, 1915).....
 Sabine-Neches Canal, Tex. (act Feb. 27, 1911).....
 Goose Creek Channel, Tex. (act Mar. 4, 1915).....
 Neches River, Tex. (act Mar. 4, 1915).....
 Missouri River at St. Joseph, Mo. (act Mar. 4, 1915).....
 Missouri River at Council Bluffs, Iowa (act Mar. 4, 1915).....
 Missouri River above Florence, Nebr. (act Mar. 4, 1915).....
 Sacramento and Feather Rivers, Cal. (act June 25, 1910).....
 Shuslaw River, Ore. (act July 25, 1910).....
 Jetty at Bandon, Ore. (act Mar. 3, 1915).....
 Weymouth Fore River, Mass. (act Mar. 4, 1915).....

Total funds contributed for improvement of rivers and harbors.....
 Repayments in excess of payments.....
 Actual expenditures.....

4,450.49	65,000.00	4,450.49	22.27	20,000.00	12,000.00
15,000.00	125,000.00	80,000.00	4,437.32		15,000.00
31,000.00		150,000.00	48,000.00		
	4,750.00		141,000.00		
		4,750.00			
	5,000.00	5,000.00			
	10,000.00	10,933.06	8,822.50		1,177.50
		3,062.50	933.05		
			3,062.50		
	150,000.00	150,000.00			
	25,000.00	25,000.00			
	34,000.00	34,000.00			
	200.00	200.00			
		1,443.22	921.57		528.65
	5,500.00	5,500.00		2,500.00	
		234.33	3,000.00		
	60,000.00	60,000.00	234.33	10,000.00	
	4,000.00	4,000.00	50,000.00		
51.70		51.70	4,000.00		
55,000.00	90,000.00	145,000.00	51.70		
22,000.00	52,500.00	74,500.00			5,000.00
		108.80			
	100,000.00	100,000.00			
					95,450.00
131,506.74	730,950.00	864,248.09	6,686.67	32,500.00	129,154.15
			665,907.27		
			1,791.35		
			694,115.92		

Statement of the appropriations of the preceding fiscal year (1917) for the Department of War, as required by the act of May 1, 1920 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1917, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
RECAPITULATION.							
Civil establishment.....	\$1,400,278.92	\$5,000.00		\$13,325,517.87	\$9,874,478.95	\$127.13	\$3,450,911.79
Military establishment.....	13,072,048.28	11,920,237.95		2,820,642,665.33	398,450,590.47		2,422,192,074.86
Rivers and harbors.....	25,854,076.36	2,807,570,617.05		66,244.12	66,244.12		40,930,238.98
		44,887,018.09		70,807,338.57	29,801,045.78	9,808.69	
Total.....	40,326,404.56	71,244.12		2,904,775,521.77	66,244.12	9,936.82	2,466,573,225.63
		2,864,577,873.09		438,126,115.20			

TABLE 8.

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1916, showing the amounts drawn by requisitions upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1916 and the balances remaining in the Treasury subject to requisition July 1, 1917.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT.							
<i>War Department salaries, etc.</i>							
Secretary's Office:							
Salaries—							
Office of Secretary of War.....	\$4,735.56		\$298.26	\$5,033.81			\$5,033.81
Adjutant General's Office.....	6,714.00		830.12	7,543.12			7,543.12
Office of Inspector General.....	220.00		7.34	227.34			227.34
Office of Judge Advocate General, United States Army.....	80.00		6.00	86.00			86.00
Signal Office.....	10.00		8.34	18.34			18.34
Office of Quartermaster General.....	6,850.00		962.41	7,802.41			7,802.41
Office of Surgeon General.....	2,948.00		354.08	3,304.08			3,304.08
Office of Chief of Ordnance.....	300.00		86.10	386.10			386.10
Office of Chief of Engineers.....	1,000.00		87.89	1,177.89			1,177.89
Bureau of Insular Affairs.....	2,400.00		263.98	2,753.98			2,753.98
Contingent expenses, War Department.....	7,436.54			7,436.54	86,378.11		1,068.43
Stationery, War Department.....	46.40			46.40	12.24		34.16
Postage to Postal Union countries, War Department.....	100.00			100.00			100.00
Total, War Department salaries, etc.	33,080.80		2,905.51	35,986.01	6,390.35		29,545.66
Repayments in excess of payments.....					2,905.51		
Actual expenditures.....					3,494.84		
<i>Public buildings and grounds in and around Washington.</i>							
Engineer Department:							
Salaries of employees, public buildings and grounds.....	2,598.00		638.74	3,236.74			3,236.74
Contingent expenses, public buildings and grounds.....			77.66	77.66			77.66
Improvement and care of public grounds.....			375.48	375.48			375.48
District of Columbia.....	892.99		81.89	974.58			974.58
Repairs, fuel, etc., Executive Mansion.....			13.43	13.43			13.43
Lighting, etc., Executive Mansion, etc.....			3,386.16	3,386.16			3,386.16
Lighting public grounds, District of Columbia.....			668.75	668.75			668.75
Telegraph to connect the Capitol with the departments and Government Printing Office.....			6.80	6.80			6.80

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1916, showing the amounts drawn by requisitions upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1916 and the balances remaining in the Treasury subject to requisition July 1, 1917—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916 to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
Public buildings and grounds in and around Washington— Continued.							
Engineer Department—Continued.							
Repairs to building where Abraham Lincoln died.			\$7.48	\$7.48			\$7.48
Care and maintenance of Washington Monument.			653.20	653.20			653.20
Improvements, birthplace of Washington, Wakefield, Va.			31.50	31.50			31.50
Total, buildings and grounds in and around Wash- ington.	\$3,490.69		5,941.09	9,431.78			9,431.78
War Department salaries, etc.	33,080.50			33,080.50			29,545.66
Buildings and grounds in and around Washington.	3,490.69		5,941.09	9,431.78	\$3,494.84		9,431.78
Total, War Department proper.	36,521.19		5,941.09	42,462.28	3,494.84		38,977.44
Less payments.			3,494.84				
Repayments in excess of payments.			2,456.25				
PUBLIC WORKS.							
Secretary's Office:							
Chickamauga and Chattanooga National Park.	10.90		2.64	13.54	13.54		4.96
Gettysburg National Park.	3,879.74			3,879.74	3,874.78		732.00
Vicksburg National Military Park.			732.00	732.00			
Engineer Department:							
Improvement of Crater Lake National Park.	4,837.77			4,837.77	3,639.56		998.21
Improvement of Yellowstone National Park.	5,596.37			5,596.37	5,534.70		60.57
Total, military parks, etc.	14,023.68		734.64	14,758.32	12,062.58		1,696.74
Repayments in excess of payments.				734.64			
Actual expenditures.					12,327.94		

Monuments.									
Engineer Department:									
Unveiling Memorial to Gen. Ulysses S. Grant.....									
Total, monuments.....	5,000.00					5,000.00		5,000.00	
Miscellaneous public works—civil.									
Engineer Department:									
Survey of northern and northwestern lakes.....									
Expenses, California Dairies Commission.....	2,673.61					2,673.61		2,673.61	169.45
Prevention of deposits, harbor of New York.....	62.20					62.20		62.20	108.08
Permanent International Commission of Congresses of Navigation.....	60.00				48.08	108.08			
Total, miscellaneous public works—civil.....	1,700.00				78.55	1,778.55			1,778.55
Repayments in excess of payments.....	4,538.81				121.63	4,647.44		2,598.36	2,081.08
Actual expenditures.....								121.63	
Summary public works—civil.									
Military Parks, etc.									
Monuments.....	14,023.68					14,023.68		12,327.94	1,695.74
Miscellaneous public works—civil.....	5,000.00					5,000.00		5,000.00	2,081.08
Total, public works.....	4,538.81					4,538.81		2,474.73	
MISCELLANEOUS.									
National cemeteries.									
Quartermaster Corps:									
Care, etc., of Confederate burial plots.....	440.25				49.25	490.50			490.50
National cemeteries.....	3,118.65					3,118.65		1,632.50	1,486.15
Pay of superintendents of national cemeteries.....	18.17				.68	18.85			18.85
Headstones for graves of soldiers.....	2,985.39					2,985.39		2,944.75	40.61
Burial of indigent soldiers.....	200.00					200.00		156.67	14.33
Burial of indigent patients, Army and Navy Hospital, Hot Springs, Ark.....	200.00					200.00			200.00
Repairing roads to national cemeteries.....	333.25				568.59	901.64			901.64
Monuments or tablets in Cuba and China.....	323.95					323.95		323.95	
Antietam Battlefield preservation.....	.12				58.79	58.91			58.91
Disposition of remains of officers, soldiers, and civil employees.....	11,347.29					11,347.29		4,733.70	6,613.59
Total, national cemeteries.....	13,967.07				677.11	19,644.18		9,870.60	9,773.58
Repayments in excess of payments.....								677.11	
Actual expenditures.....								9,193.49	

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1916, showing the amounts drawn by requisitions upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1916 and the balances remaining in the Treasury subject to requisition July 1, 1917—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
MISCELLANEOUS—Continued.							
<i>Support of National Homes.</i>							
Board of Managers National Home for Disabled Volunteer Soldiers:							
National Homes for Disabled Volunteer Soldiers.....	84,553.23	223,500.00	\$108,596.09	\$131,759.41	80,782.58		\$121,976.83
National Sanitarium for Disabled Volunteer Soldiers, Hot Springs, S. Dak.....	224.43	6,000.00		6,234.48	68.23		6,166.25
State or Territorial Homes for Disabled Soldiers and Sailors.....			75,181.92	75,181.92			75,181.92
Total, support of National Homes.....	4,897.80	29,500.00	178,778.01	213,176.81	9,850.81		208,326.00
Less payments.....			168,927.20				
Repayments in excess of payments.....							
<i>Miscellaneous objects.</i>							
Medical Department:							
Artificial limbs.....	11,817.26		1,529.45	13,246.71			13,246.71
Appliances for disabled soldiers.....	500.00		131.61	631.61			631.61
Trusses for disabled soldiers.....	1,400.00		63.87	1,463.87			1,463.87
Relief acts:							
Arrears of pay, bounty, etc.....	24,097.10			24,097.10			24,097.10
Pay, etc., of the Army, War with Spain, certified claims.	1,193.25			1,193.25			1,193.25
Total, miscellaneous objects.....	29,007.61		1,724.93	40,782.54			40,782.54
<i>Summary, miscellaneous.</i>							
National cemeteries.....	18,987.07			18,987.07			9,778.58
Support of National Homes.....	4,897.80	29,500.00	168,927.20	203,326.00	9,193.49		203,326.00
Miscellaneous objects.....	36,007.61		1,724.93	40,782.54			40,782.54
Total, miscellaneous.....	62,872.48	29,500.00	170,652.13	203,094.61	9,193.49		253,831.12
Less payments.....			9,193.49				
Repayments in excess of payments.....							

Summary, civil establishment.				
War Department proper.....	36,521.19	2,455.25	38,977.44	38,977.44
Public works.....	23,540.49		23,540.49	23,540.49
Miscellaneous.....	62,872.48	20,500.00	253,831.12	253,831.12
Total, civil establishment.....	122,943.16	20,500.00	316,358.05	296,555.38
Less payments.....				
Repayments in excess of payments.....		140,112.22		
MILITARY ESTABLISHMENT.				
Support of the Army.				
Secretary's Office: Contingencies of the Army.....	9,458.13		9,458.13	8,010.91
Office of the Chief of Staff: Contingencies, Military Information Section, General Staff Corps.....	1,281.92	512.35	1,777.70	1,777.70
Expenses of military observers abroad.....	4,933.34	3,416.94	8,370.28	8,370.28
Army War College.....	143.20		143.20	91.94
United States service schools.....	39.32		39.32	28.38
Coast Artillery School, Fort Monroe, Va.....	10.50		10.50	10.50
The Adjutant General's Department: Contingencies, headquarters of military departments.....	2,500.00	380.53	2,880.53	2,880.53
Chief Signal Officer: Signal Service of the Army.....	31,169.51		31,169.51	21,111.73
Expenses, commission on selection of site for Aviation School.....	25.90		25.90	25.90
Replacing Signal Corps supplies and equipment.....	1,506.21	5,360.84	6,867.05	6,867.05
Washington-Alaska Military Cable and Telegraph System.....	24,734.94		24,734.94	192.86
Commercial telephone service at Coast Artillery posts.....	547.94	296.48	844.42	841.42
Quartermaster Corps: Pay, etc., of the Army.....	138,024.33	950,000.00	1,088,024.33	780,455.31
Mileage to officers and contract surgeons.....	21,259.91		21,259.91	5,380.07
Supplies, services, and transportation.....	1,040,361.11		1,040,361.11	115,173.96
Horses for Cavalry, Artillery, Engineers, etc.....	3,705.75	35,370.15	39,076.90	39,076.90
Barracks and quarters.....	421,351.57		421,351.57	91,336.13
Military post exchanges.....	7,146.58		7,146.58	3,600.65
Roads, walks, wharves, and drainage.....	57,008.63		57,008.63	12,426.36
Construction and repair of hospitals.....	162,400.46		162,400.46	11,378.81
Quarters for hospital stewards.....	665.59		665.59	599.45
Shooting galleries and ranges.....	5,036.41		5,036.41	1,880.05
Maintenance, Army War College.....	850.00	97.93	947.93	947.93
Rent of buildings, Quartermaster Corps.....	13,347.90		13,347.90	13,347.90
Bureau of Insular Affairs: Care of insane Filipino soldiers.....	300.00	694.80	694.80	694.80
Care of insane soldiers, Porto Rico Regiment of Infantry.....			300.00	300.00

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1916, showing the amounts drawn by requisitions upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1916 and the balances remaining in the Treasury subject to requisition July 1, 1917—Continued.

Title of appropriation.		Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.								
<i>Support of the Army—Continued.</i>								
Medical Department:								
Medical and Hospital Department.....		\$67,681.59			\$67,681.59	\$61,357.91		\$6,323.68
Replacing medical supplies.....		48,913.35			48,913.35	48,753.43		159.93
Army Medical Museum.....		1,500.00			1,500.00	1,200.00		300.00
Library, Surgeon General's Office.....		4,922.24			4,922.24	4,219.88		772.36
Hospital care, Canal Zone garrisons.....		16,133.65			16,133.65	4,333.08		11,800.57
Engineer Department:								
Engineer depots.....		137.70			137.70	101.76		35.92
Engineer School, Washington, D. C.....				\$111.70	111.70			111.70
Engineer equipment of troops.....		256.85	\$300,000.00		300,256.85	300,256.85		
Civilian assistants to Engineer officers.....				.34	.34			.34
Contingencies, Engineer Department, Philippine Islands.....				7.67	7.67			7.67
Ordnance Department:								
Ordnance service.....		23,266.43			23,266.43	22,040.31		1,217.12
Ordnance stores, ammunition.....		5,636.95			5,636.95	5,496.77		141.18
Small-arms target practice.....		48,835.23			48,835.23	48,589.58		245.64
Manufacture of arms.....		869.85			869.85	853.46		16.39
Ordnance stores and supplies.....		1,166.26			1,166.26	777.73		388.53
National trophy and medals for rifle contests.....		96.59			96.59	89.07		6.52
Automatic rifles.....			190,000.00		190,000.00	189,018.76		981.25
Armored motor cars.....		3,508.72			3,508.72	3,456.41		52.31
Replacing ordnance and ordnance stores.....		219,722.17			219,722.17	146,003.23		71,718.94
Total, support of the Army.....		2,860,926.72	1,440,512.35	45,740.81	3,876,778.88	2,655,936.55	\$3.00	1,220,839.33
Repayments in excess of payments.....						45,740.81		
Actual expenditures.....								
<i>Military Academy.</i>								
Pay of Military Academy.....		19,987.27		18,905.52	38,892.79			38,892.79
Current and ordinary expenses, Military Academy.....		6.32		1,247.56	1,253.88			1,253.88
Miscellaneous items and incidental expenses, Military Academy.....				199.07	199.07			199.07

Buildings and grounds, Military Academy.....	81.10	535.30	916.40	916.40
Total, Military Academy.....	20,074.09	21,137.45	41,202.14	41,202.14
<i>Organized Militia.</i>				
Field artillery for Organized Militia.....	22,449.28		22,449.28	267.61
Ammunition for field artillery, Organized Militia.....	816.97		816.97	225.40
Care of horses and matériel, field artillery, Organized Militia.....	105,822.03		105,822.03	99,519.50
Encampment and manœuvres, Organized Militia.....	29,887.63		35,797.10	35,797.10
Arms, uniforms, equipments, etc., Organized Militia.....	264,620.52	5,909.45	264,620.52	
Total, Organized Militia.....	159,975.90	5,909.45	429,505.90	135,509.61
Repayments in excess of payments.....			265,996.29	
Actual expenditures.....			5,909.45	
<i>Arsenals.</i>				
Ordnance Department:				
Rock Island Arsenal, Rock Island, Ill.....	10,131.17			14,723.10
Springfield Arsenal, Springfield, Mass.....	228.42	4,591.93	14,723.10	403.21
Benicia Arsenal, Benicia, Cal.....		174.79	403.21	26.65
Rock Island bridge, Rock Island, Ill.....		26.65	26.65	
Rock Island power plant, Rock Island, Ill.....	59.19	1,637.03	1,637.03	1,637.03
Proving ground, Sandy Hook, N. J.....	2,132.67		2,132.67	59.19
Testing machine.....	2,846.25		2,846.25	
Repair of arsenals.....	54,735.12		54,735.12	398.88
Total, arsenals.....	70,132.83	6,430.40	76,563.22	17,238.06
Repayments in excess of payments.....			6,430.40	
Actual expenditures.....			52,896.76	
<i>Military posts, etc.</i>				
Quartermaster Corps:				
Sewerage system, Fort Monroe, Va.....		319.73	319.73	319.73
Engineer Department:				
Enlargement of Governors Island, N. Y.....		245.95	245.95	245.95
Total, military posts, etc.....		565.68	565.68	565.68
<i>Miscellaneous.</i>				
Engineer Department:				
Maps, War Department.....	36.54		36.54	
Total, miscellaneous.....	36.54		36.54	

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1916, showing the amounts drawn by requisitions upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1916 and the balances remaining in the Treasury subject to requisition July 1, 1917—Continued.

Title of appropriation.		Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.								
<i>Summary military establishment.</i>								
Support of the Army.....		\$2,390,325.73	\$1,440,512.35	.....	\$3,831,088.07	\$2,010,108.74	\$3.00	\$1,220,939.33
Military Academy.....		20,071.60	.....	\$21,187.45	41,262.14	.....	.....	41,262.14
Organized Militia.....		158,975.90	264,020.53	.....	423,596.43	287,736.81	.....	135,909.61
Arsenals.....		70,132.82	.....	.....	70,132.82	\$2,806.76	.....	17,284.06
Military posts.....		.....	.....	565.68	565.68	.....	.....	565.68
Miscellaneous.....		36.54	.....	.....	36.54	36.54	.....	.....
Total, Military Establishment.....		2,639,745.67	1,705,132.87	21,763.13	4,366,631.67	2,950,915.85	3.00	1,415,712.82
Repayments in excess of payments.....		.....	.....	.....	.....	21,763.13	.....	.....
Actual expenditures.....		.....	.....	.....	.....	2,929,152.72	.....	.....
RIVERS AND HARBORS.								
<i>Engineer Department:</i>								
Maintenance of South Pass Channel, Mississippi River.....		258.94	.....	.....	258.94	258.94	.....	846.09
Gauging waters of the Mississippi and its tributaries.....		800.00	.....	46.00	846.00	.....	.....	.....
Removing obstructions in Mississippi, Atchafalaya, and Old Rivers.....		6,997.73	.....	.....	6,997.73	246.10	.....	6,752.62
Operating snag and dredge boats on Upper Mississippi, Illinois, and Minnesota Rivers.....		591.69	2,288.04	2,288.04	2,879.73	.....	.....	2,879.73
Operating snag boats on the Ohio River.....		14,550.00	.....	239.25	14,789.25	.....	.....	14,789.25
Total, rivers and harbors.....		23,198.35	.....	2,573.38	25,771.73	504.04	.....	25,267.69
Less payments.....		.....	.....	504.04	.....	.....	.....	.....
Repayments in excess of payments.....		.....	.....	2,069.34	.....	.....	.....	.....
Actual expenditures.....		.....	.....	.....	.....	.....	.....	.....
RECAPITULATION.								
Civil establishment.....		122,943.16	29,600.00	149,112.23	301,555.38	5,000.00	.....	296,555.38
Military Establishment.....		2,639,745.67	1,705,132.87	.....	4,344,878.54	2,929,152.72	3.00	1,415,712.82
Rivers and harbors.....		23,198.35	.....	2,069.34	25,267.69	.....	.....	25,267.69
Total.....		2,785,887.18	1,734,632.87	151,181.56	4,671,701.61	5,000.00	3.00	1,737,535.89
Repayments in excess of payments.....		.....	.....	151,181.56	.....	2,929,152.72	.....	.....
Actual expenditures.....		.....	.....	.....	.....	2,777,981.16	.....	.....

TABLE 4.

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1915, showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1915 and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110).

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT. <i>War Department salaries, etc.</i>							
Secretary's Office:							
Office of Secretary of War.....	\$1,933.19			\$1,933.19		\$1,933.19	
Adjutant General's Office.....	9,088.34			9,088.34		9,088.34	
Office of Judge Advocate General, United States Army.....	167.50			167.50		167.50	
Signal Office.....	175.55			175.55		175.55	
Office of Quartermaster General.....	7,330.71			7,330.71		7,330.71	
Office of Surgeon General.....	1,445.55			1,445.55		1,445.55	
Office of Chief of Ordnance.....	748.74			748.74		748.74	
Office of Chief of Engineers.....	2,009.76			2,009.76		2,009.76	
Bureau of Insular Affairs.....	1,799.16			1,799.16		1,799.16	
Contingent expenses, War Department.....	6,384.83			6,384.83		6,384.83	
Station of War Department.....	5,983.94			5,983.94		5,983.94	
Rent of buildings, War Department.....	730.00			730.00		730.00	
Postage to Postage Union countries, War Department.....	100.00			100.00		100.00	
Total, War Department salaries, etc.....	37,827.32			37,827.32		37,827.32	
Public buildings and grounds in and around Washington.							
Engineer Department:							
Salaries of employees, public buildings and grounds.....	2,329.37		\$1.75	2,331.12		2,331.12	
Contingent expenses, public buildings and grounds.....	40.91		3.00	44.51		44.51	
Improvement and care of public grounds.....	25.47			25.47		25.47	
District of Columbia.....	267.48		3.20	270.68		270.68	
Repairs, fuel, etc., Executive Mansion.....	57.55			57.55		57.55	
Lighting, etc., Executive Mansion, etc.....	2,080.33			2,080.33		2,080.33	
Telegraph to connect the Capitol with the departments and Government Printing Office.....	101.90			101.90		101.90	
Repairs to building where Abraham Lincoln died.....	13			13		13	
Total.....	10.57			10.57		10.57	

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1915, showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1915 and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110)—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916 to June 30, 1917.	Aggregate available.	Payments July 1, 1916 to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
<i>Public buildings and grounds in and around Washington—Continued.</i>							
Engineer Department—Continued							
Care and maintenance of Washington Monument	\$987.79			\$987.79		\$987.79	
Improvements, birthplace of Washington, Wakefield, Va	100.00			100.00		100.00	
Total, buildings and grounds in and around Washington	5,991.80		\$3.55	6,000.35		6,000.35	
War Department salaries, etc.	37,827.32			37,827.32		37,827.32	
Buildings and grounds in and around Washington	5,991.80		8.55	6,000.35		6,000.35	
Total, War Department proper	43,810.12		8.55	43,827.67		43,827.67	
PUBLIC WORKS.							
<i>Military parks, etc.</i>							
Secretary's Office:							
Chickamauga and Chattanooga National Park	180.67			180.67	\$1.78	188.89	
Gettysburg National Park	3.94			3.94	3.00	94.00	
Vicksburg National Military Park	720.00			720.00	180.00	540.00	
Engineer Department:							
Improvement of Cedar Lake National Park	1,712.62			1,712.62		1,712.62	
Improvement of Yellowstone National Park	645.10			645.10			
Total military parks, etc.	3,242.33			3,242.33	820.88	2,412.45	
<i>Miscellaneous public works—civil.</i>							
Engineer Department:							
Survey of northern and northwestern lakes	108.86			108.86		108.86	
Prevention of deposits, harbor of New York	4,245.15			4,245.15		4,245.15	
Permanent International Commission of Congresses of Navigation	216.99		322.75	639.74		639.74	
Maps of United States lands in the District of Columbia			11.50	11.50		11.50	
Total, miscellaneous public works—civil	4,668.00		334.25	4,902.25		4,902.25	

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1915, showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1915 and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110)—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
MISCELLANEOUS—Continued.							
<i>Miscellaneous objects.</i>							
Medical Department:							
Artificial limbs.....	\$45,686.42			\$45,686.42		\$45,616.56	
Appliances for disabled soldiers.....	680.85			680.85		680.85	
Trusses for disabled soldiers.....	1,708.67			1,708.67		1,708.67	
Relief acts:							
Arrears of pay, bounty, etc., certified claims.....	22,629.68			22,629.68		22,629.68	
Pay, etc., of the Army, War with Spain, certified claims.....	6,571.06			6,571.06		6,571.06	
Quartermaster Corps:							
Transporting and caring for interned Mexican soldiers and military refugees.....	2,036.17		\$8,535.84	10,572.01		10,572.01	
Total, miscellaneous objects.....	79,322.86		8,535.84	87,858.69	66.86	87,791.83	
Less payments.....			66.86				
Repayments in excess of payments.....			8,468.98				
<i>Summary, miscellaneous.</i>							
National cemeteries.....	25,606.81		3,872.50	29,479.31		29,406.81	
Support of National Homes.....	176,646.03	\$2,247.03		178,893.06	2,428.10	176,464.96	
Miscellaneous objects.....	79,322.86		8,468.98	87,791.83		87,791.83	
Total, miscellaneous.....	280,906.29	2,247.03	12,341.48	295,494.80	2,428.10	293,066.70	
Less payments.....			2,428.10				
Repayments in excess of payments.....			9,913.38				
<i>Summary, civil establishment.</i>							
War Department proper.....	43,819.12		8.55	43,827.67		43,827.67	
Public works.....	7,810.33			7,810.33	496.63	7,313.70	
Miscellaneous.....	280,906.29	2,247.03	9,913.38	293,066.70		293,066.70	
Total, civil establishment.....	332,535.74	2,247.03	9,921.93	344,704.70	496.63	344,208.07	
Less payments.....			496.63				
Repayments in excess of payments.....			9,425.30				

MILITARY ESTABLISHMENT.

Support of the Army.

MILITARY ESTABLISHMENT.		Support of the Army.	
Secretary's Office:	8,268.04	594.66	8,862.70
Contingencies of the Army			
Office of the Chief of Staff:			
Contingencies, Military Information Section, General Staff Corps.	6,064.15	1,199.36	6,263.51
United States service schools.	19.33	68.37	88.37
Coast Artillery School, Fort Monroe, Va.	26.75		19.33
Adjutant General's Department:			26.75
Contingencies, headquarters of military departments.	2,293.59	6.50	2,245.09
Chief Signal Officer:			
Signal Service of the Army	2,000.31		1,867.63
Washington-Alaska Military Cable and Telegraph System.	115.78		115.78
Annunciator buzzer systems at target ranges.	97.31		97.31
Commercial telephone service at Coast Artillery posts.	83.19		83.19
Signaling equipment for coast defense posts.	1,238.02		1,238.02
Quartermaster Corps:			
Pay, etc., of the Army	66,844.54	7,130.12	73,973.66
Subsistence to officers and contract surgeons.	23,807.02	17,659.76	41,466.78
Subsistence of the Army	23,592.03	25,419.32	49,011.35
Regular supplies, Quartermaster Corps	332,470.08	10,248.70	342,718.78
Replacing regular supplies, etc., act Mar. 23, 1910.	4,398.46	10.00	4,398.46
Accidental expenses, Quartermaster Corps.	64,155.77	9,064.01	73,219.78
Replacing accidental expenses, etc., act Mar. 23, 1910.	12,508.54	51.32	12,559.86
Horses for Cavalry, Artillery, Engineers, etc.	69,846.81	63,102.66	133,949.47
Military post exchanges.	13,014.31	3,255.85	16,270.16
Trains, Station of the Army and its supplies.	419,417.03	2,675.59	422,092.62
Roads, walks, wharves, and drainage.	31,305.02	102,427.42	133,732.44
Water and sewers at military posts.	20,426.88	2,678.66	23,105.54
Clothing and camp and garrison equippage.	74,679.31		74,679.31
Replacing clothing and camp and garrison equippage, act Mar. 23, 1910.	6,731.67		6,731.67
Construction and repair of hospitals.	22,843.71	295.64	23,139.35
Quarters for hospital stewards.	782.63		782.63
Shooting galleries and ranges.	1,351.45		1,351.45
Maintenance Army War College.	219.62	29.54	249.16
Rent of buildings, Quartermaster Corps.	1,238.65	22.58	1,261.23
Bureau of Insular Affairs:			
Care of insane Filipino soldiers.	695.40		695.40
Care of insane soldiers, Porto Rico Regiment of Infantry.	500.00		500.00
Medical Corps:			
Medical and Hospital Department.	6,776.47		6,776.47
Replacing medical supplies.	30.53	52.28	83.21
Army Medical Museum.	1,918.56		2,460.77
Library, Surgeon General's Office.	948.75	642.21	2,098.63
Hospital care, Canal Zone garrisons.	13,837.68	1,149.88	14,987.56
		39.50	13,798.18
			73,983.66

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1915, showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1915 and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110)—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.							
<i>Support of the Army—Continued.</i>							
Engineer Department:							
Engineer School, Washington, D. C.	\$27.70			\$27.70		\$27.70	
Engineer equipment of troops.	196.55		\$4.45	174.00		174.00	
Civilian assistants to Engineer officers	5.64			5.64		5.64	
Ordnance Department:							
Ordnance service.	398.10			398.10	\$130.17	267.93	
Ordnance stores, ammunition.	142.94			147.10		147.10	
Small-arms target practice.	723.80		4.16	723.80	620.00	103.80	
Manufacture of arms.	338.56			338.56	14.79	343.77	
Ordnance stores and supplies.	685.54		7.90	683.44		693.44	
National trophy and medals for rifle contests.	657.96			657.96		657.96	
Replacing ordnance and ordnance stores.	77.91			77.91		77.91	
Total, support of the Army.	1,192,767.79		155,994.93	1,348,762.72	7,768.84	1,267,010.22	\$73,983.66
Less payments.			7,768.84				
Repayments in excess of payments.			148,226.09				
<i>Military Academy.</i>							
Pay of Military Academy.	18,680.84			19,741.00		19,741.00	
Current and ordinary expenses, Military Academy.	1,625.00		1,000.16	1,625.00		1,625.00	
Miscellaneous items and incidental expenses, Military Academy.	227.24			227.24		227.24	
Buildings and grounds, Military Academy.	1,111.91			1,111.91		1,111.91	
Total, Military Academy.	21,614.99		1,000.16	22,705.15		22,705.15	
<i>Organized Militia.</i>							
Field artillery for Organized Militia.	8,077.81			8,077.81		132.81	
Ammunition for field artillery, Organized Militia.	120.96			120.96	7,925.00		
					120.96		

Encampment and maneuvers, Organized Militia.....	15,850.08	808,186.59	2,568.62	16,442.70	66,186.59	16,442.70	
Arms, uniforms, equipment, etc., Organized Militia.....				66,186.59			
Total, Organized Militia.....	22,043.55	68,186.59	2,568.62	92,899.08	76,232.55	16,504.51	
Repayments in excess of payments.....					2,568.62		
Actual expenditures.....					73,638.93		
Arsenals.							
Ordnance Department:							
Rock Island Arsenal, Rock Island, Ill.	19			19		19	
Springfield Arsenal, Springfield, Mass.	30.17			30.17		30.17	
Benicia Arsenal, Benicia, Cal.	.55			.55		.55	
Augusta Arsenal, Augusta, Ga.	81.50			81.50		81.50	
Rock Island power plant, Rock Island, Ill.	409.02			409.02		409.02	
Repairs of arsenals.....	648.07		160.75	808.82		808.82	
Total, arsenals.....	1,196.50		160.75	1,330.25		1,330.25	
Military posts, etc.							
Quartermaster Corps:							
Sewerage system, Fort Monroe, Va.	379.59			379.59		379.59	
Total, military posts, etc.....	379.59			379.59		379.59	
Miscellaneous.							
Engineer Department:							
Maps, War Department.....	62.56			62.56		62.56	
Total, miscellaneous.....	62.56			62.56		62.56	
Summary, military establishment.							
Support of the Army.....	1,192,767.79		149,226.09	1,340,993.88		1,267,010.22	73,983.66
Military Academy.....	21,614.99		1,090.16	22,705.15		22,705.15	
Organized Militia.....	22,043.55			90,236.44	73,638.93	16,594.51	
Arsenals.....	1,196.50		160.75	1,330.25		1,330.25	
Military Posts, etc.....	379.59			379.59		379.59	
Miscellaneous.....	62.56			62.56		62.56	
Total, Military Establishment.....	1,238,043.28	68,186.59	149,477.00	1,455,706.87	73,638.93	1,308,064.28	73,983.66
Less payments.....			73,638.93				
Repayments in excess of payments.....			76,838.07				

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1915, showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1917, in settlement of outstanding liabilities created during the fiscal year 1915 and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110)—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
RIVERS AND HARBORS.							
Engineer Department:							
Maintenance of South Pass Channel, Mississippi River.			\$14.47	\$14.47		\$14.47	
Gauging waters of the Mississippi and its tributaries.	\$1,319.01			1,319.01		1,319.01	
Removing obstructions in Mississippi, Atchafalaya and Old Rivers.	2,046.94		.49	2,047.43		2,047.43	
Operating snag and dredge boats on upper Mississippi, Illinois, and Minnesota Rivers.	1,007.43			1,007.43	\$108.08	899.35	
Operating snag boats on the Ohio River.	13.50			13.50		13.50	
Total, rivers and harbors.	4,386.88		14.96	4,401.84	108.08	4,293.76	
Repayments in excess of payments.					14.96		
Actual expenditures.					93.12		
RECAPITULATION.							
Civil establishment.	332,535.74	\$2,247.03	9,426.30	344,209.07		344,209.07	
Military Establishment.	1,239,043.28	68,186.59	75,533.07	1,382,067.94		1,306,084.28	\$73,983.66
Rivers and harbors.	4,386.88			4,386.88	93.12	4,293.76	
Total.	1,574,965.90	70,433.62	85,264.37	1,730,663.89	93.12	1,666,567.11	73,983.66
Less payments.			93.12				
Repayments in excess of payments.			85,171.25				

TABLE 5.

Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1914, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1917, the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1917.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT.							
<i>Public buildings and grounds in and around Washington.</i>							
Engineer Department: Improvement and care of public grounds, District of Columbia, certified claims.....		\$10.50		\$10.50	\$10.50		
Total, buildings and grounds in and around Wash- ington.....		10.50		10.50	10.50		
<i>Miscellaneous, public works—civil.</i>							
Engineer Department: Expense, California Debris Commission, certified claims		.13		.13	.13		
Total, miscellaneous public works—civil.....		.13		.13	.13		
MISCELLANEOUS.							
<i>National cemeteries.</i>							
Quartermaster Corps: Headstones for graves of soldiers, certified claims.....		28.29		28.29	28.29		
Disposition of remains of officers, soldiers, and civil employees, certified claims.....		71.29		71.29	71.29		
Disposition of remains of officers, soldiers, and civil employees, 1914.....			\$1.79	1.79		\$1.79	
Total, national cemeteries.....		99.58	1.79	101.37	99.58	1.79	
Repayments in excess of payments.....					1.79		
Actual expenditures.....					97.79		
<i>Support of National Homes.</i>							
Board of Managers, National Home for Disabled Volunteer Soldiers: National Home for Disabled Volunteer Soldiers, certi- fied claims.....		44.64		44.64	44.64		
Total, support of National Homes.....		44.64		44.64	44.64		

Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1914, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1917, the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1917—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916 to June 30, 1917.	Repayments July 1, 1916 to June 30, 1917.	Aggregate available.	Payments July 1, 1916 to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT—Continued.							
MISCELLANEOUS—continued.							
<i>Miscellaneous objects.</i>							
Quartermaster Corps:							
Transporting and caring for interned Mexican soldiers and military refugees, certified claims.....		\$5,973.29		\$5,973.29	\$5,973.29		
Total, miscellaneous objects.....		5,973.29		5,973.29	5,973.29		
<i>Summary, miscellaneous.</i>							
National cemeteries.....		99.58		99.58	97.79	\$1.79	
Support of National Homes.....		44.64		44.64	44.64		
Miscellaneous objects.....		5,973.29		5,973.29	5,973.29		
Total, miscellaneous.....		6,117.51		6,117.51	6,115.72	1.79	
<i>Summary, civil establishment.</i>							
War Department, proper.....		10.50		10.50	10.50		
Public works.....		13		13	13		
Miscellaneous.....		6,117.51		6,117.51	6,115.72	1.79	
Total, civil establishment.....		6,128.14		6,128.14	6,126.35	1.79	
MILITARY ESTABLISHMENT.							
<i>Support of the Army.</i>							
Office of Chief of Staff:							
Contingencies, Military Information Section, General Staff Corps, 1914.....			\$29.13	29.13		29.13	
Chief Signal Officer:							
Signal service of the Army, certified claims.....		43.43		43.43	43.43		

Quartermaster Corps— Pay, etc., of the Army— Certified claims	\$1,278.05	60,908.08	107.51 2.29 25.00 26.13 28.00 39.99 20.44 291.04 10,486.25	06,186.73 107.51 2.29 25.00 26.13 28.00 39.99 20.44 291.04 10,486.25	06,908.08	107.51 2.29 25.00 26.13 28.00 39.99 20.44 291.04 10,486.25	\$1,278.05
Extra-duty pay to enlisted men as clerks, etc., at Army division and department headquarters, certified claims		3,584.80		3,584.80	3,584.80		
Mileage to officers and contract surgeons— Certified claims		42.00	812.63	42.00	42.00	812.63	
Substance of the Army— Certified claims		32.95		32.95	32.95		
1877 and prior years			5.10 1.15	5.10 1.15		5.10 1.15	
1910			264.54	264.54		264.54	
1914							
Regular supplies— Certified claims	6,972.16	173.95		7,146.11	173.95		6,972.16
1912			41.18	41.18		41.18	
1913			237.14	237.14		237.14	
1914			862.36	862.36		862.36	
Incidental expenses— Certified claims		55,019.94		55,019.94	54,922.64		97.30
1913			1.06	1.06		1.06	
1914			79.45	79.45		79.45	
Barbours and quarters— Certified claims		126.14		126.14	126.14		
1911			64.81	64.81		64.81	
1914			235.53	235.53		235.53	
Transportation of the Army and its supplies— Certified claims		8,800.97		8,800.97	8,800.97		
1910			3.56	3.56		3.56	
1912			35	35		35	
1913			217.50	217.50		217.50	
1914			10,963.85	10,963.85		10,963.85	
Transportation of officers and their baggage, 1877 and prior years			28.80	28.80		28.80	
Roads, walks, wharves, and drainage— Certified claims		600.53		600.53	600.53		
1913			50	50		50	
1914			672.76	672.76		672.76	
Water and sewers at military posts— Certified claims		1,419.32		1,419.32	1,419.32		
1914			28.00	28.00		28.00	

Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1914, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1917, the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1917—Continued.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
MILITARY ESTABLISHMENT—Continued.							
<i>Support of the Army—Continued.</i>							
<i>Quartermaster Corps—Continued.</i>							
Clothing and camp and garrison equipage—							
Certified claims.							
1912		\$11.23	80.33	\$11.23	\$11.23	80.33	
1913			15.13	15.13		15.13	
1914			60.48	60.48		60.48	
Ordnance Department:		3,660.19		3,660.19	3,660.19		
Construction and repair of hospitals, certified claims							
Ordnance Department:							
Small-arms target practice, 1913 and 1914.			84.47	84.47		84.47	
Manufacture of arms, 1912 and 1913.			34.58	34.58		34.58	
Automatic rifles—							
1911 and 1912							
1913 and 1914			7.62	7.62		7.62	
Replacing ordnance and ordnance stores, 1911 and 1912.	\$0.50					50	
Medical Department:			47.59	47.59		47.59	
Medical and Hospital Department, certified claims		3.58		3.58	3.58		
Total, support of the Army.	8,251.31	140,526.11	25,878.85	174,655.27	140,428.81	25,879.25	\$8,348.11
Repayments in excess of payments.					25,878.85		
Actual expenditures					114,549.96		
<i>Organized Militia.</i>							
Encampment and maneuvers, Organized Militia, certified claims		151.00		151.00	151.00		
Total, Organized Militia		151.00		151.00	151.00		
<i>Arsenals.</i>							
Ordnance Department:							
Repair of arsenals, 1914.			399.14	399.14		399.14	
Total arsenals			399.14	399.14		399.14	

Summary, Military Establishment.

Support of the Army.....	8,251.31	140,628.11	148,777.42	114,549.96	25,879.35	8,348.11
Organized Militia.....		151.00	151.00	151.00		
Arsenals.....			399.14	399.14	399.14	
Total, Military Establishment.....	8,251.31	140,677.11	149,327.56	114,700.96	26,278.49	8,348.11
Repayments in excess of payments.....				399.14		
Actual expenditures.....				114,301.82		
RECAPITULATION.						
Civil establishment.....		6,128.14	6,128.14	6,126.35	1.79	
Military Establishment.....	8,251.31	140,677.11	148,928.42	114,301.82	26,278.49	8,348.11
Total.....	8,251.31	146,805.25	155,056.56	120,428.17	26,280.28	

SUMMARY.

Title of appropriation.	Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
CIVIL ESTABLISHMENT.							
War Department salaries, etc.:							
Fiscal year 1917.....	\$109.39	\$3,701,543.33		\$3,701,552.72	\$2,283,767.09	\$50.00	\$1,417,835.63
Fiscal year 1916.....	33,080.50			33,080.50	3,484.54		29,545.96
Fiscal year 1915.....	37,827.32			37,827.32		37,827.32	
Total, War Department salaries, etc.....	70,997.21	3,701,543.33		3,772,510.54	2,287,251.63	37,877.32	1,447,381.29
Buildings and grounds in and around Washington:							
Fiscal year 1917.....		\$22,188.00		\$22,188.00	417,128.37		105,069.63
Fiscal year 1916.....	3,480.69		\$5,941.09	9,431.78			9,431.78
Fiscal year 1915.....	5,991.80		8.55	6,000.35		6,000.35	
Fiscal year 1914 and prior years.....		10.50		10.50			
Total, buildings and grounds in and around Wash- ington.....	9,462.49	\$22,198.50	5,949.64	\$37,630.63	417,138.37	6,000.35	114,491.41
Repayments in excess of payments.....					5,949.64		
Actual expenditures.....					411,189.23		
Total, War Department proper.....	80,449.70	4,223,741.83		4,304,191.53	2,698,441.16	43,877.67	1,561,872.70
Military parks, etc.:							
Fiscal year 1917.....	21,324.76	\$54,687.00		\$605,011.76	409,592.64		195,419.12
Fiscal year 1916.....	14,023.68			14,023.68	12,327.94		1,695.74
Fiscal year 1915.....	3,242.33			3,242.33		2,412.45	
Total, military parks, etc.....	38,590.77	\$54,687.00		\$622,277.77	422,760.46	2,412.45	198,114.86
Monuments:							
Fiscal year 1917.....	284,556.60	\$5,000.00		289,556.60	9,999.01		279,557.59
Fiscal year 1916.....	5,000.00			5,000.00	\$5,000.00		
Total monuments.....	289,556.60	\$5,000.00		294,556.60	5,000.00		279,557.59
Miscellaneous public works—civil:							
Fiscal year 1917.....	223,449.83	\$46,997.26		769,447.09	331,455.93		437,991.16
Fiscal year 1916.....	4,525.81			4,525.81	2,474.73		2,051.08
Fiscal year 1915.....	4,568.00		334.25	4,902.25		4,902.25	

[illegible]

SUMMARY—Continued.

MILITARY ESTABLISHMENT.		Balances July 1, 1916.	Appropriated July 1, 1916, to June 30, 1917.	Repayments July 1, 1916, to June 30, 1917.	Aggregate available.	Payments July 1, 1916, to June 30, 1917.	Carried to surplus fund June 30, 1917.	Balances June 30, 1917.
Support of the Army:								
Fiscal year 1917:		\$2,135,756.32	\$2,033,514,843.04		\$2,035,650,599.36	\$356,951,267.49		\$1,678,699,331.57
Fiscal year 1916:		2,390,525.72	1,440,512.35		3,831,038.07	2,610,195.74	\$1.00	1,220,839.33
Fiscal year 1915:		1,192,767.79		\$148,228.09	1,340,993.88		1,267,010.22	73,963.66
Fiscal year 1914 and prior years:		8,251.31	140,528.11		148,777.42	114,549.96	25,879.35	8,345.11
Total, support of the Army:		5,727,301.14	2,035,065,881.50	148,228.09	2,040,971,408.73	359,678,013.19	1,292,892.57	1,680,002,502.97
Repayments in excess of payments:						148,228.09		
Actual expenditures:						359,827,787.10		
Reserve Corps, fiscal year 1917:			1,739,000.00		1,739,000.00			1,739,000.00
Military Academy—								
Fiscal year 1917:		4,000.00	1,240,243.57		1,244,243.57	1,116,577.97		127,665.60
Fiscal year 1916:		20,074.69		21,187.45	41,262.14			41,262.14
Fiscal year 1915:		21,614.99		1,060.16	22,705.15		22,705.15	
Total, Military Academy:		45,689.68	1,240,243.57	22,277.61	1,308,210.86	1,116,577.97	22,705.15	168,927.74
Repayments in excess of payments:						22,277.61		
Actual expenditures:						1,094,300.36		
Organized Militia:								
Fiscal year 1917:		4,452,719.75			4,452,719.75	3,572,854.64		879,865.11
Fiscal year 1916:		158,976.90	294,620.52		453,598.42	267,798.81		136,808.61
Fiscal year 1915:		21,048.86	68,198.59		90,235.44	73,038.93	16,596.51	
Fiscal year 1914 and prior years:			131.00		131.00	131.00		
Total, Organized Militia:		4,633,744.50	329,868.11		4,968,702.61	3,934,431.38	16,596.51	1,015,674.72
National Guard, fiscal year 1917:			56,077,240.00		56,077,240.00	7,079,598.36		48,997,641.64
Civilian military training, fiscal year 1917:			9,738,000.00		9,738,000.00	4,112,288.74		5,625,711.26
Fortifications, fiscal year 1917:		6,005,407.50	687,560,915.45		693,566,322.95	15,582,630.11		677,983,692.84
Arsenals:								
Fiscal year 1917:		26,998.27	5,594,395.00		5,621,393.27	2,107,659.77		3,513,733.50
Fiscal year 1916:		70,132.82			70,132.82	52,894.76		17,238.06
Fiscal year 1915:		1,169.50		160.75	1,330.25		1,330.25	

Fiscal year 1914 and prior years.....	399.14	399.14	399.14	399.14
Total, arsenals.....	196,300.59	5,594,393.00	559.89	1,739.39
Repayments in excess of payments.....			559.89	3,530,992.56
Actual expenditures.....				
Military posts:				
Fiscal year 1917.....	444,964.06	3,702,479.99		
Fiscal year 1916.....			565.08	
Fiscal year 1915.....	379.59		379.59	1,827,048.34
Total military posts.....	445,343.65	3,702,479.99	565.08	1,827,048.34
Repayments in excess of payments.....				565.08
Actual expenditures.....				
Miscellaneous:				
Fiscal year 1917.....	2,202.38	8,345,500.00		
Fiscal year 1916.....	36.54		36.54	
Fiscal year 1915.....	62.56		62.56	2,798,382.70
Total, miscellaneous.....	2,301.48	8,345,500.00		2,798,382.70
Total, military establishment.....	16,958,088.54	2,809,494,613.62		2,423,690,119.45
RIVERS AND HARBORS.				
Fiscal year 1917.....	25,854,076.36	66,244.12		
Fiscal year 1916.....	23,198.35	44,887,018.09		9,809.69
Fiscal year 1915.....	4,386.88		2,099.34	25,267.69
Total, rivers and harbors.....	25,881,661.59	66,244.12		4,293.76
Repayments in excess of payments.....				
Actual expenditures.....				
RECAPTULATION.				
Civil establishment.....	1,855,758.82	11,968,113.12		
Military establishment.....	16,958,088.54	2,809,494,613.62		
Rivers and harbors.....	25,881,661.59	44,887,018.09		
Total.....	44,695,508.95	2,866,329,744.83		14,103.45
				40,955,508.67
				244,337.99
				1,334,365.77
				14,103.45
				1,692,897.21
				2,468,393,083.29

NOTE.—Figures shown in boldface type represent amounts transferred between appropriations and therefore neither appropriations nor expenditures.

REPORT OF THE CHIEF OF STAFF.

REPORT OF THE CHIEF OF STAFF.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF STAFF,
Washington, September 22, 1917.

SIR: I have the honor to submit my annual report.

The fact that we are in the midst of war with a shrewd and powerful enemy makes it undesirable to touch upon some matters which would otherwise be dealt with in this report; moreover, my absence in Russia, the great press of business since my return, and my impending departure for France, have left too little time in which to adequately comment upon all of them were such a course now prudent.

I shall, therefore, confine myself to a few general questions which seem of grave importance for the present and future efficiency of the Army.

THE GENERAL STAFF.

The greatest emergency which has confronted the country since 1860 fortunately found the Army possessed of an organ without which no intelligent preparation for a war is possible and whose absence in previous conflicts has crippled the most patriotic efforts, delayed the decision, and magnified the expense.

It may be said that the General Staff is only just growing to man's estate. An act of Congress in 1903 created this organ in name, but that act could not endow a large body of officers with the special education and experience which are the attributes of a General Staff. This education and experience had to be created; the act merely gave the authority to undertake the task.

The Staff College and the War College were therefore instituted, but the instructors themselves had to be evolved before these schools could begin to turn out a useful product. Such a process is long, and it is only in the last few years that a small but steady supply of men has passed through the Staff College and the War College and, returning to their regiments, constituted a little reservoir from which could be drawn from time to time and under very strict rules officers understanding at least the theory and trained at least in the theoretical application of general-staff methods. Since war was declared the demand for officers having this education has been enormous; the supply wholly inadequate. But these few officers have worked with a devotion and skill worthy of great praise, and it is without fear of contradiction that I record the belief that had this small category of officers educated in general-staff work never been created the confusion, delay, and disappointments of 1898 would have been repeated and magnified in 1917.

When war was declared on April 6 last only 20 officers were available for the huge work suddenly placed upon the General Staff in Washington—work which the law anticipated that it alone should do, work which the General Staff alone was qualified to do. Of these 20 officers 9 were employed by the Chief of Staff in his office on duties prescribed for him by law, viz, the coordination and supervision of the entire Military Establishment; upon the remaining 11 devolved “the study of military problems, the preparation of plans for the national defense, and the utilization of the military forces in time of war.”

This paucity of officers for work of such unparalleled importance, which can only be described as deplorably unfortunate, was the result of the act of Congress of June 3, 1916, which limited the number of officers who could be assigned to the General Staff to 55, and which prescribed that not more than half of these could at any time be employed upon any duty in or near Washington. During the whole year following this enactment there was pressing need of a large force of officers educated in general-staff work to prepare tentative plans for the very situation which finally arose; but precisely during this period the law made it impossible for me to so employ them. It is not too much to say that a hundred officers could have been usefully occupied on matters for which only 11 were available.

Nothing could more clearly show the practical disadvantage to the country of having the law limit so unconditionally the number of officers who even in an emergency may be employed on General Staff work and the number which may be assembled in a given place, as Washington, in order to do that work. An emergency may arise of such delicacy as to make it unwise to request Congress to enact a special law providing the agencies to meet it; the crisis may pass and no harm is done, but if the crisis does not pass but grows into a great war, is it wise to cripple the very instrument of preparation which the law and the country rely upon for protection?

THE WAR COLLEGE.

The military problems incident to the concentration of the Regular Army and the National Guard along the border as well as the reorganization of the Regular Army under the act of June 3, 1916, had given full occupation to the small body of General Staff officers on duty in Washington up to the outbreak of war. The flood of problems immediately preceding and following the rupture of diplomatic relations with Germany was more than they could cope with, and as a first measure of relief five General Staff officers were taken from duty on the border and sent to the War College, giving it a total of 16 officers. No further increase was possible until Congress, on May 18, 1917, increased the General Staff Corps to 91 officers. These were selected and appointed, and finally 47 of them were assembled at the War College for work. Had they been there in February and the months following, preparations for our entrance into the war would have been improved and hastened.

The general staff of most European armies have their problems solved before the outbreak of hostilities; when war comes they have but to execute plans already made. Such was not the case with us,

The method of raising our Army for war, as well as its strength and organization, had first to be prescribed by Congress; only when this was done could detailed plans be prepared by the General Staff for carrying out the enactment. This has been done rapidly and efficiently.

A few of the problems presented for immediate action were those pertaining to the organization of our divisions in conformity with the most recent requirements of the present system of warfare, as recommended by experienced officers of the allied armies fresh from French battle fields; the organization of the complex service of the rear, involving functions of the Quartermaster, Engineer, and Medical Departments, the organizing of numerous camps for the National Guard and the National Army, as well as special camps for the Artillery, Engineer, Aviation, Medical, and Machine Gun services; the preparation of manuals for the instruction of candidate officers in the training camps, and various manuals for artillery and infantry in the division camps.

The Intelligence Service had to be expanded many fold, new agents for its enlarged activities found, examined, and accepted. The demands upon this service for information of every kind have been enormous, and its small body of trained officers had to spend much of their time instructing their new assistants, mostly fresh from civil life. In spite of the difficulties this section has, between the outbreak of war and September, compiled, translated, or prepared from the latest sources no less than 73 pamphlets dealing with special and frequently secret features of the present method of warfare. These have been distributed to the officers and organizations having need of them.

THE OFFICE OF THE CHIEF OF STAFF.

Before the creation of the General Staff 14 years ago The Adjutant General of Army performed, in relation to the Secretary of War, the functions which in other armies fall to a chief of staff. There was no general staff and no body of officers performing the duties of a general staff. The Army was commanded a good deal like a regiment, the Secretary of War being the colonel and The Adjutant General his adjutant.

Our very small Army, hardly larger than one division, with its strictly local problems and duties which made of it little more than a national constabulary, permitted such an arrangement to continue with at least tolerable results in time of peace; but it provided no preparation for war and could not be made to work in war, as the events of 1898 abundantly proved.

The acts of 1903 and 1904, recognizing the necessity for modernizing and improving the organs of command, created a Chief of Staff, at the head of a body called the General Staff, abolished the office of The Adjutant General and turned his former functions over to this Chief of Staff. The Adjutant General's office continued to be the repository of records and the organ for transmitting the orders and other decisions of the Secretary of War to the Army, but it ceased to be an organ of command, its chief ceased to represent the Secretary of War, act in his name, and by his authority secure the execution of his commands.

To emphasize this change, the title as well as the office of "Adjutant General" was abolished by law and the title "Military Secretary" employed to designate the new office which handled the papers of the War Department but had nothing to do with the decisions contained in them. It was justly esteemed that in view of the great prestige and importance which formerly had attached to The Adjutant General's office, it was no longer appropriate that this term should apply to an office performing functions of a purely clerical nature.

In an act of 1907 a clause revived the title "Adjutant General" but did not restore the former duties of the office; these continued substantially what the act of 1903 made them; but on June 3, 1916, Congress passed a law directly addressed to the duties of the Chief of Staff and of The Adjutant General and hence affecting the mutual relations of their offices.

This act made it possible for the Secretary of War, had he decided upon such an interpretation, to make The Adjutant General his organ of command for all business concerning the mobile Army, and the Chief of Coast Artillery his organ of command for all concerning that branch of the service, thus eliminating the Chief of Staff from commanding or being an organ of command, and restricting him to duties of "supervision and coordination." These duties, in the absence of direct or delegated power to command the mobile Army and the Coast Artillery (that is, the whole line) might readily have become vague and finally nominal only.

Whatever may have been the changes in the method of commanding the Army which this legislation was intended to bring about, I believe that its passage by Congress was based upon a misconception of the true rôle of a General Staff and a Chief of Staff. Its effect has not as yet been considerable, but it indicates a tendency to revert to a system which we have tried in a small Army and found wanting even there, and which if now applied to our larger Army would present a grave danger.

I can not imagine why this seeming suspicion should exist as to the honesty of purpose toward the Government and disinterested loyalty toward the whole military service of the Chief of Staff and his assistants, that ever-changing body of officers known as the General Staff.

Since, in any scheme of decentralized yet converging authority, power must be delegated to somebody, there is no reason whatever why there should be any hesitation in conferring it upon the Chief of Staff and his legally appointed subordinates. These men are simply Army officers of exactly the same antecedents, principles, and motives as all other officers of the Army; they are intentionally drawn from all grades and branches, the sole effort being to choose the ablest; they are powerless to select or perpetuate their own members and their only interests are those of the service at large. They do not constitute a permanent body, and there is no reason why they should be animated by a dangerous desire to advance the interests of the General Staff, since this body is less closely and permanently constituted than any other corps.

I therefore urge that not only should no further narrowing of the field of responsibility of the Chief of Staff be undertaken, but that Congress be asked to formally reverse the tendency in that direction

indicated in the act of June 3, 1916. This I hope it will do by passing legislation which will sanctify by law the true powers of the Chief of Staff and remove all impediments to his command, subject to the Secretary's orders, of the line of the Army, and to his duty of coordinating the work of all the staff departments.

The reasons which make this useful are to my mind quite evident and are not based upon any prejudice, or desire for power, or any lack of confidence in other corps and their chiefs, but solely upon elementary principles of military organization. These principles are becoming every day more clearly understood by all our people, due to their intense interest in the war and especially in all that concerns our share in it. This interest begets a discussion and study, and it is for this reason that the time seems opportune to bring this matter to the attention of a Congress which has shown the most liberal and sympathetic as well as earnest attitude toward every military problem presented to it.

In any army unity of command is absolutely essential to secure prompt decisions and rapid execution of them. This unity of command exists only imperfectly in our Army, and the chief reason for this unfortunate condition lies in the fact that parallel and not convergent lines lead to the Chief of Staff and the Secretary of War. Now, countries whose very existence has long depended upon keeping up an efficient army have discovered that this convergence is best secured by a general staff whose functions are to aid the person who commands and to coordinate all efforts toward the success of such operations as this person is undertaking. These may be the assembling, equipping, and instructing of troops, or they may be operations of any army against an enemy. In either case the brain of the person in command, whether a general or a secretary of war, must be left free to calmly study and decide upon the larger questions for which he alone is responsible. This freedom, whether in a great business or a great army (and war is merely a very great business), is secured by means of a properly organized staff, whose members must be trained in the same conceptions, must be imbued with the ideas of their chief, and must enjoy his entire confidence. Mutual confidence must be the basis of staff organization.

In all military establishments there are conflicting interests. Each department, as it strives to attain the best results as it sees them, is likely to conflict with the efforts of some other department animated by the same worthy intention. Only a limited amount of money, men, material, etc., is usually obtainable, and the demands of all can not be fully satisfied. It is one of the most important functions of a general staff to aid in apportioning available resources amongst these claimants and to authoritatively establish the order of priority amongst them in such a way as to best accomplish the results which the war secretary or general may have in mind.

The staff is the repository of its chief's intentions, and its members, having consulted his confidence and knowing his plans, must, in his name and frequently without consulting him, give decisions which will accomplish his purposes. If staff officers consult their chief on all matters he no longer has a staff but only clerks. Now, this high function of coordination which belongs to Chief of Staff and his assistants implies authority, emanating from one source, converging to it.

And that is the present weakness of our organization. Our Chief of Staff has never been frankly and openly accorded the power necessary to fulfill the functions for which his office with its organized assistance was created. This power, this right to command in the Secretary's name, which in the French and German armies is so clearly expressed and fully acceded to, is implied in phrases such as "coordinating functions," "supervisory capacity," etc., but there has existed and there still seems to exist, a shrinking from saying quite boldly that, under the Secretary of War, the Chief of Staff commands the Army and has all the power and responsibility which this situation implies.

It may be well to recall here that when the war broke out in Europe Marshal Joffre was, and had been for some years, chief of staff of the French Army. Under French law the chief of staff is the officer who will command in the field in case of war, and to fit him for this duty he commands the army in time of peace. As the French put it, the man who is to use the instrument in war must shape and sharpen it in peace.

The reasons for this old hesitation in unmistakably defining the powers of the Chief of Staff are quite comprehensible to those who remember the struggle which, after our war with Spain, a great War Secretary was obliged to make during a long period to convince Congress of the imperative need of creating a General Staff. Each bureau chief was then accustomed to managing his department with a large measure of independence, going directly as he did to the Secretary of War for his decisions, and it was only human that these perfectly conscientious men should resist the intervention between them and the Secretary of what they long considered to be merely another bureau chief, viz, the Chief of Staff. And this is, and for many remains, the misconception which has delayed an efficient organization in our War Department. For a true Chief of Staff is not a bureau chief. He must be something different and much more if he is to perform the functions which everywhere pertain to his office and which even in our country are popularly attributed to him.

In every properly constituted military machine there are three agencies which though kept separate are yet made to work together to one common end. These are the agencies of (1) study, (2) decision, and (3) execution. Studies are made by specially organized committees of the General Staff, decisions are made by the supreme military authority, directly or by delegation; execution of these decisions is not, in our Army or in any other, the affair of the General Staff, but falls upon supply and manufacturing or technical services, such as our Quartermaster, Medical, or Ordnance Departments.

But in military, as in all other large business, the men who decide must have power to oversee and, if need be, compel, execution; and especially they must insure cooperation when several executants work to the same end. In every modern army, including our own, this duty lies with the General Staff, but in our Army alone the agents needed for this latter function and having the three things required to perform it, viz, (a) special knowledge, (b) time, and (c) prestige and authority are lacking; and in our country alone there exists a certain confusion of ideas as to the field and method of action, respectively, of the deciding agents and the executing agents.

Also the word "administration"—where it begins and leaves off and who is charged with it—has at times become a veritable bug-bear, and effort is constantly made to draw a sharp line between "administration" and "command." I think this should be cleared up. The person who commands, whether in military or civil affairs, must administer. He may not himself do the various things pertaining to details of administration, but he gives the orders which govern the persons directly charged with administering, and so he is responsible for administration and hence does administer.

Nobody would deny that a post commander administers as well as commands his post; the fact that he does it through agencies such as the quartermaster, adjutant, surgeon, police officer, etc., in no way alters the essential idea. These officers do not administer the post, but are the agents of administration, subject to the orders of the responsible head who commands and administers.

When we come to the Army taken as a whole I think the same principle applies; there is no reason why it should not apply, and it is well for the avoidance of all confusion or possible dispute that it should be clearly understood in all quarters that it does apply. Such was evidently your view as given in your opinion of September 13, 1916, on the effect of section 5, national defense act.

There is no doubt that the Secretary of War is charged with the command and hence the administration of the Army; there is in my opinion equally little doubt that the Chief of Staff as the organ of command of the Secretary is as much responsible, under his orders, for the "administration" for the Army as for any other element pertaining to its command. He does not and could not perform these functions directly any more than the Secretary could; he does it through agents such as the Chief of Coast Artillery, the Quartermaster General, the Surgeon General, etc., and he has the least possible reason for interfering with the details by which these officers carry on their special work. This would absorb his time and seriously interfere with his highest function, which is the coordination of the efforts of all these officers toward one object, viz, the maintenance and operation of an efficient fighting force.

The above discussion has seemed to me necessary in order to clear up many misapprehensions which I have encountered in performing the duties of Chief of Staff and to justify me in urging, as I now do, that a clear cut organization of the War Department be effected as soon as possible in order to meet our present and future problems promptly and effectively. When this is undertaken, I recommend that the following general principles govern:

There should be one and only one organ through which the Secretary of War commands the Army—the Chief of Staff. In all that concerns discipline, recruiting, instruction, intelligence, training, arming, equipping, mobilization, transportation, education, movement of troops, the appointment, promotion, detail and selection of officers, the Chief of Staff should be the medium of recommendation to the Secretary and of execution for his orders. He should have ample authority for securing the coordination of all the activities of the military establishment.

The General Staff should be divided as now into two distinct bodies, one (a) to aid the Chief of Staff in his coordinating and

supervisory capacity and be his organs of command, just as he is the Secretary's organ of command; the other (b) to make the studies required for the mobilization, organization, instruction, training, and movement of our armies to gather military intelligence, and to investigate such special subjects as are referred it.

The duties of class (b) have heretofore been efficiently performed by what is known as the War College division of the General Staff; but, due to the small number of officers who could legally be assigned to it, the War College has been frequently called upon for work not falling within its appropriate sphere. This is to be regretted and, under a new organization of the Chief of Staff's office, can be avoided.

The great difficulty has lain and now lies in the absence of a well-balanced organization of that office, and to permanently remedy this condition may require the approval of Congress, since the act of June 3, 1916, might be considered to stand in the way. This act abolished the mobile Army division in the Chief of Staff's office and, except for the interpretation which the Secretary of War fortunately gave to this provision, would have made the command of the Cavalry, Field Artillery, and Infantry pass through the hands of The Adjutant General instead of the Chief of Staff. While unity of command requires that all arms of the service should be commanded through the Chief of Staff, to insure a healthy decentralization, as well as coordination, chiefs for each of these arms are absolutely necessary.

A chief of Cavalry, of Infantry, or of Field Artillery is just as much needed as is a chief of Coast Artillery, and whatever reasons may have existed a year ago for not creating such offices they must give way before the imperious necessity of this moment, when instead of 37 regiments of infantry we have several hundred, embracing 800,000 men, and instead of 9 regiments of field artillery we have well over a hundred already organized, comprising more than 200,000 men, with many more regiments of both arms shortly to be raised. If the most permanent and perfectly organized armies in the world have found it necessary to have such chiefs in time of peace as well as war, it seems hardly reasonable to believe that we who are suddenly confronted with all the intricate problems of raising, instructing, and equipping hundreds of new regiments of these arms can properly get along without them. These chiefs of arms would take a vast burden from the shoulders of the Chief of Staff and the Secretary of War. A needed step in decentralization would be effected while the common chief of these chiefs would insure a coordination which at the present moment is most difficult to obtain.

There should also be organized in the Chief of Staff's office divisions or sections to deal with recruiting, the movement of troops, the appointment, promotion and detail of officers, and any other sections which the Secretary of War finds it advantageous to create.

As the making out of orders and letters is one of the most important duties of staff officers, it is appropriate as well as useful that junior officers of the General Staff should begin their service by a term in the office handling such matters, in order to learn by practice an essential part of their specialty.

The Adjutant General's office should become the record division or section of the General Staff, with a chief at its head appointed in the same manner as are other chiefs of the various parts of the General Staff. There now remain only four officers who are perma-

nent members of this department. I recommend that they be transferred to the line and immediately detailed for work in the General Staff during the continuance of the war. The Adjutant General of the Army has talents of the highest order, which would be of great value to the Secretary of War were he a member of the General Staff during the present emergency, becoming a general in the line after its close.

These arrangements necessarily imply the abolishing of The Adjutant General's office as a separate staff department, since its functions of recommendation and command would disappear or be absorbed by various sections of the General Staff; its purely clerical duties would be performed as now, but by a section of the General Staff.

I recognize that the carrying out of the above plan of organization would give rise to much discussion and the expression of diverse opinion, and it would be idle to deny the difficulties which would be encountered from men sincerely opposed to the change; but I believe that this will not deter the Secretary of War from making the effort to accomplish it should he concur in the views I have expressed above. The time is now ripe for improving our organization. There has undeniably been delay and some confusion in the transaction of the business suddenly thrust upon The Adjutant General's office and the Chief of Staff's office; it is my firm belief that had the war found us with the organization I have just outlined, both would have been largely avoided.

Above all, I express the hope that a fearless examination of this question will be undertaken, freed from every touch of personal interest or prejudice and animated solely by the desire to arrive at the best possible organization of the War Department, one which will furnish to all the extremities of the military establishment that rapid and vigorous impulse which can only come from perfectly concerted effort at the center.

My own motive in making this recommendation I believe will not be misunderstood. Most of my 41 years of service has been spent in the line; I have belonged to the General Staff Corps only as its assistant chief and chief, and I can never again be given those functions. I have absorbed none of the prejudices and rivalries which the General Staff may be charged with nourishing, but which I have never observed; I am fully acquainted with the difficulties and trials which have confronted it and other corps in working together for the common good; this is my last annual report and when the war is over my active career is ended. And so in urging the grave necessity for the changes I recommend above I believe myself free from any influence except a desire to be of use to a service which I love and which has greatly honored me.

SCHOOL FOR EDUCATING GENERAL STAFF OFFICERS DURING THE YEAR.

As time goes on a great number of General Staff officers will be needed at home and with our armies in the field. In this connection it is worthy of note that in spite of the very large number of French general staff officers who had graduated from their war college in past years and were disseminated in the various regiments, it has been found necessary, after three years of war, to reconstitute schools in France for the special education of officers in general staff work,

and regret has been expressed in very high quarters at the closing of the French War College, as was done on the outbreak of war in order to send its professors and students to the front.

I believe, therefore, that in the near future brief courses of instruction in General Staff duties might be organized at the War College to cover at least the preliminary training of Regular and Reserve officers in General Staff duties immediately applicable to the present war. The presence in America of a number of experts in the French general staff would be of inestimable value in assisting our officers in this instruction, which could be accomplished by more advanced courses in schools back of our line in France. If the French now feel the need of such schools, it would seem that we have an even greater reason for instituting them.

I invite attention to the fact that the number of officers which the laws of France permitted in time of peace to be detailed to the general staff (for they detail men from the line as we do) was 640 officers below the grade of brigadier-general (70 colonels and lieutenant colonels, 170 majors, 400 captains). There is no limitation on the number of general officers; before the war it varied from 10 to 15.

These 640 officers were considered necessary to do the general staff work in time of peace of an army of less than 600,000 men. The United States now has a million men under arms and the law limits our General Staff to 91 officers. It can be seen, therefore, under what a disadvantage it has been laboring.

I have referred to the great labor which the declaration of war placed upon all officers of the General Staff, but no less need of praise belongs to the individual officers of the various staff corps and supply departments for the way they attacked and solved the truly enormous problems suddenly placed before them.

From a little nucleus, which a year ago amounted to 4,800 officers and 97,000 men, and which includes the large garrisons necessarily maintained in Panama, Hawaii, and the Philippines, the Military Establishment has been expanded to more than a million men actually under arms. That such a feat could be accomplished between May 24, when Congress authorized this expansion, and September, when it has been completed, is, in my opinion, chiefly due to the ability, energy, and careful theoretical education of the officers of our Regular Army. For experience in such undertakings did not exist, and no practical training in preparation for them had ever been possible.

The mention of only a few of the largest problems will give some picture of the vast expansion imposed upon the staff departments.

QUARTERMASTER CORPS.

The Quartermaster Corps had to build cantonments to house over a million men, provide for feeding, clothing, and paying them. It had to arrange for the transportation in successive groups at the required time for all these men from their homes to these camps. This whole organization had to be created, the material and labor found, contracts made, and the whole business quickly done. It had also to organize a service for over-sea transport for our divisions which have gone to France and for the forwarding of the great quantities of supplies needed by them, to say nothing of providing the vast numbers of horses, wagons, and trucks needed for the service of our troops on the French front.

Prior to the declaration of war there was a civilian force of 321 employees on duty in the Quartermaster General's office and there are now 900. There were 280 quartermasters in the Army before the declaration of war, and now there are 5,080. The strength of the enlisted personnel prior to the war was 7,956; it is now 134,000. The civilian personnel of the Quartermaster Corps was 9,000 and is now 30,000.

SIGNAL CORPS.

Upon the Signal Corps fell the utterly unparalleled effort required for the creation of a great air fleet, representing the expenditure of vast sums of money for material alone. The outbreak of the war with Germany found the United States with very few trained air fighters and practically no planes. There was no airplane industry. There was no system of training aviators which could be expanded to meet an emergency. There was but little knowledge of the enormous strides forward which Europe had made in the technical details of aviation, and no trained engineering force in the country accustomed to work in this specialty, moreover patents were in litigation.

During the past six months the situation has changed materially, and a superb foundation has been laid for utilizing to the greatest advantage the generous appropriations made by Congress.

The National Advisory Committee on Aeronautics has solved the patent difficulty on a basis of equity so that the manufacture of airplanes is free and untrammelled. Through the Bureau of Standards it has worked out a standardization scheme whereby the absurd condition previously existing which required over 3,000 different parts for one type of machine has ceased to clog the industry. It has enormously aided in the clarification of technical subjects.

The Aircraft Production Board has stimulated the whole industry, spread out its orders in a way to strengthen existing companies and bring others into being and has developed an enormous manufacturing force cooperating most happily with the Government and destined to be one of America's great assets after the war. It has also mobilized all the related industries.

Schools have been established and an intensive system of instruction started; and to do this fields had to be selected, cleared of woods and leveled, great hangars and dormitories built and railways and roads constructed.

Nevertheless, enormous problems still remain. Aviation science is advancing by leaps and bounds, so that a machine to-day is obsolete to-morrow. The most minute watchfulness must be exercised. The successful completion of the United States engine, America's first victory in the air, will, it is hoped, be followed by similar triumphs of American ingenuity in other lines.

ORDNANCE DEPARTMENT.

Upon the Ordnance Department devolved the duty of providing equipments, small arms, machine guns, and cannon necessary for our vastly expanded Army, as well as many new weapons and complicated engines, with provision for their maintenance, repair, and replacement.

The magnitude of the task facing this department may be better understood when it is stated that prior to the declaration of war there were 11 Ordnance officers on duty in the Ordnance office, with a civilian force of 96 clerks and messengers. This force has been expanded to approximately 450 officers and 1,600 civilians. The department is now expending in four hours what prior to the war it expended in one year; it will expend or obligate in the present fiscal year a sum as great as that spent for the entire Federal Government in four years prior to the war.

MEDICAL DEPARTMENT.

The Medical Department had to organize a service adequate to care for the sick and wounded of a very large army in cantonments at home and in the field abroad. In March, 1917, there were on duty in the Surgeon General's office approximately 140 clerks and messengers, and 10 officers. At the present time there are 505 clerks and messengers and 110 officers.

Commissions in the Medical Reserve Corps have been given to 12,765 civilians, 2,622 in the Dental Reserve Corps, 233 in the Sanitary Corps, and 12 in the Ambulance Service.

The enlisted personnel of the Medical Department was 6,619 at the beginning of the war and it is now over 70,000. Some of the most eminent physicians in the country have been commissioned in the Officers' Reserve Corps, and by their loyalty and patriotism they are enabling the Medical Department to solve many problems which otherwise it could not do.

OTHER STAFF DEPARTMENTS.

To the Judge Advocate General's Department was assigned the new and intricate duties involved in the raising by draft of half a million men, together with all the delicate questions which such an undertaking in a country like ours involves. This work has been done with consummate skill.

In addition to the handling of a correspondence more enormous perhaps than anything that has ever before passed through one office, The Adjutant General's Department was confronted with the work which the law assigns it, of recruiting the Regular Army to war strength, while at the same time fulfilling its regular duty in connection with the detail and assignment of officers of our new and increased armies.

The Chief of Engineers and of Coast Artillery and the Inspector General also were confronted with an expansion of their duties surpassing any possible anticipation.

That all of these problems could not be met and solved by the unaided efforts of our small body of professional officers is quite evident. These officers constituted the trained and informing nucleus about which was gathered from every walk of life and profession a number of able, devoted, and patriotic citizens, experts in their various lines, and who have brought to our officers a collaboration as precious as it has been welcome. The spirit of these men is beyond praise, as their work is beyond recompense.

The one great stumblingblock, and for which neither these men nor the Army is responsible, has lain in a defective organization of our military system and the absence of power on the part of the President to make in it immediately the changes required to meet a great emergency. The gravest of these defects I have referred to above in the hope that it may receive early remedy.

COMPULSORY TRAINING IN PEACE AND SERVICE IN WAR.

In my annual report of June 30, 1916, I recommended the adoption of the principle of compulsory military training in time of peace and compulsory military service in time of war. I believed then, as I believe now, that to rely upon voluntary offers of service, whether for training or for fighting, is undemocratic, inefficient, and unfair.

This recommendation was, to my great satisfaction, embodied in law last May, when, war having been declared and the President having recommended the raising of an Army by the method of selective draft, Congress passed an act which, for the period of this war at least, makes compulsory military service the law of the land.

It is not intended to go into an argument here in favor of obligatory training in peace and service in war; the vast majority of our citizens seem now fully convinced that this is the only fair and democratic method of preparing for and carrying out the defense of our country; it is certainly the most effective one; but it is useful at this time to contemplate and to remember hereafter how vastly all our present problems would be simplified had such a system been in operation when we entered the war. The thousands of young men who for four months have been trying to fit themselves to become reserve officers would have been already educated and tried out during several periods of instruction; they would have been ready to at once take their places in their regiments and enter upon the work of training their men as they arrived. Officers of the Regular Army, so greatly needed for work which they alone are fitted to do, would not have been absorbed in large numbers as instructors in reserve officers' training camps and in other duties which could readily have been put upon well-trained reserve officers had such been available. Above all, the men who now constitute or will compose the National Armies, would already know the elementary business of a soldier and all the work of instruction and training would be advanced by many months. Instead of devoting a long period to the most elementary and the least interesting part of a soldier's business, all ranks would be ready to at once begin the far more interesting work of regimental and divisional training, and they would already be for the most part very good shots.

I hope and believe that we will never return to the volunteer system except for over-sea service, and that even for this duty volunteers will be sought solely from men already trained under a permanent system which will compel all the able-bodied youths of the land to prepare themselves by at least one year of service to defend their country. From these trained men, at the close of their compulsory period of service, should be accepted volunteers for two years of duty in our island possessions sufficient to maintain those garrisons at needed strength. They should be liberally paid and provided for,

and those attaining the rank of sergeant should be given preference in employments of the Civil Service.

The officers likewise for these garrisons should be chosen from those volunteering, and they should be rewarded by larger pay and more rapid promotion than those serving at home.

This system would make for contentment as well as efficiency in all ranks. A similar one has long been in successful operation in France, whose problem in the matter of over-sea garrisons is similar to our own.

RESERVE OFFICERS' TRAINING CORPS AND CAMPS.

Most useful results have flowed from the clause of the national defense act which provided for Reserve Officers' Training Corps in educational institutions. A fine spirit of patriotism has animated the faculties and student bodies of many of our universities and colleges in adopting and carrying out its provisions. The result of their action has been that when we entered the war there existed already a large body of young men of the exact type from which junior officers are best made, who had enthusiastically submitted to discipline and instruction, and from whom a considerable proportion of officers for the National Army has been recruited. The wisdom of the enactment has been fully proved.

A useful experience had already been gained in these colleges, as well as in the training camps organized during the last few years, so that when it became necessary, on our entrance into the war, to create a number of Reserve Officers' training camps this experience was immediately applied with universally good results.

The first series of officers' training camps was announced on April 18, 1917, and in the 20 days between that date and May 8 approximately 150,000 men volunteered for the camps. Of this number about 43,000 were selected as candidates. They were given intensive training for a period of three months, and at the end of August 27,341 officers were commissioned from the camps. These men are fine material, and with further training and experience should make excellent officers. They will be used for all the lower grades in the first increment of the National Army and to some extent with the Regular Army and National Guard.

To anticipate the need for officers to take charge of a further increment of drafted troops a second series of officers' camps were begun on August 27 with an attendance of about 21,000. Although the standards were higher than for the first series, 72,914 men volunteered, and those selected are believed to be of the highest quality. It is expected that about 15,000 additional officers will be commissioned at the close of these camps.

SITUATION ON THE MEXICAN BORDER.

After the engagement at Carrizal on June 21, 1916, between two troops of the Tenth United States Cavalry, under the command of Capt. Boyd, and troops of the de facto Government no movement or action of importance on the part of our troops in Mexico occurred during the remainder of their stay. They were withdrawn February 5, 1917.

A continual state of unrest existed in Mexico and many engagements occurred between the Villistas and the troops of the de facto Government. The border was threatened with raids at various times, but nothing of a serious nature happened.

However, it was necessary to maintain on the border a large force of Regulars and National Guard as long as this condition of unrest and danger of raids existed. The situation cleared sufficiently in the fall of 1916 to warrant withdrawal of part of the National Guard. This withdrawal was continued gradually until at the outbreak of the present war practically all of the National Guard had been withdrawn and mustered out of the Federal service.

In my previous report I described the calling out of the National Guard and its mobilization on the border, and referred to the great benefit which the National Guard derived from the practical instruction they received under the supervision of trained officers. This instruction was of inestimable value in their preparation for the part they are to play in the present war.

ALLIED OFFICERS SENT TO AMERICA.

Immediately after our entrance into the war missions comprising officers of the highest distinction and ability were sent by the various allied Governments to the United States. As a result of consultations with these officers and with Gen. Pershing it was decided that the technical instruction of our enlarged Army in its various camps would be greatly advanced by the presence of officers fresh from European battle fields and practiced in all the new methods of attack and defense developed by the present war.

A large number of these officers, especially of the French and British services, have now arrived in our camps and are doing the most useful and self-sacrificing work. It is not desirable to go into any details regarding their activities, but it is fitting to record the satisfaction which their presence gives to all those with whom they work in the most perfect accord and with results of the greatest value to the common cause.

DETAILS TO PERMANENT STAFF CORPS.

In my annual report for 1916 I made the following recommendation in regard to the detail of chiefs and other officers to the permanent staff bureaus:

Chiefs of bureau can not be removed by a Secretary of War, whereas in the interest of efficient military administration they should be as easily removed as is a Chief of Staff. The association of the permanent officers of the staff corps with the line is, in most cases, limited to inspections, reading of reports, etc., whereas every officer of the permanent staff should be in close touch with the sentiments and needs of the line. There would result better cooperation and increased efficiency.

I am of opinion that all the officers of the staff corps, excepting judge advocates, engineers, medical officers, and chaplains, should be transferred to the line. A number of officers equal to those transferred would have to be detailed to perform staff duties. But the total number of officers of the Army would not be increased, and all officers would belong to a common body and the struggle between the line and staff brought to an end. Thereafter an officer detailed as chief of a bureau or corps of the War Department should be detailed for

four years, unless sooner relieved, and upon being relieved would return to that grade and branch in which commissioned and be not eligible to redetail except in time of war or other national emergency until he shall have served therewith for two years. The law that applies to the Chief of Staff should apply to the chief of every bureau and corps of the War Department, with above exceptions only.

I beg to renew this recommendation.

DETACHED-SERVICE LAW.

In my last annual report, page 18, I made certain observations and recommendations regarding the detached-service law which I now renew. The national defense act has raised the detached officers' list to 1,022, and in time of peace a strict application of the detached-service law as it now exists will greatly increase the expense to the Government incident to numerous changes of station. I recommend again that this whole matter be simplified by a law which would authorize an officer entering upon a detail to serve out the four years of the same and then require him to serve two years with troops before again becoming eligible for any detail. This law should apply to all departments and all officers with the exceptions implied in the paragraph above.

I can not close this, my last report, without an expression of gratitude to you, Mr. Secretary, and to the President, for the confidence and support which you have given me as the head of the Army. Since your nomination to office you have labored with a lofty disinterestedness and a sympathetic understanding for the welfare of a service to which you were bound by no previous ties, and I beg leave in the name of that service to express our profound gratitude for all you have done. I thank you and the President for your invariable consideration and support, and I take my leave of you with a deep feeling of admiration, affection, and regret, and with the belief that you will successfully meet the many problems confronting you in this greatest of all wars.

Very respectfully,

H. L. SCOTT,
Major General, Chief of Staff.

To the SECRETARY OF WAR.

APPENDIXES.

Examples of the application of General Staff principles to current military problems.

Opinion of the Secretary of War on the act of June 3, 1916.

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APPENDIX I.

The following examples will serve to illustrate the principles of General Staff operations as outlined in the body of the report.

Suppose that the question is the adoption of a new Infantry rifle. The Infantry arm would have a chief with immediate access to ample means of study and experiment. This is furnished by the Infantry School of Musketry. Here rifles of all countries and makes are tried out; here are sent all weapons offered by inventors. Suppose something wholly superior to the regulation arm is announced from this school. From the Infantry point of view it ought to be adopted. What would happen?

The Chief of Infantry presents the case to the Chief of Staff; regarding such an important matter there would be conferences called by the Secretary of War, including the Chiefs of Infantry, of Ordnance, and of the General Staff; after this the Secretary must consult the lawmaking authorities, since a great expenditure is involved and no public discussion is wise unless the matter can be carried through. Suppose finally it is decided to adopt the new rifle. A date is fixed when it should be put in the hands of troops, and after that the Secretary and the Chief of Staff should have no more concern over the matter unless very important questions arise later which require their decision.

The Chief of Ordnance proceeds in his own way to manufacture the rifle. But a new equipment to go with it and new drill regulations are probably necessary. The Chief of Infantry, through constituted organs subject to his orders or those of the Chief of Staff, prepares these and has them approved. The Chief of Staff then issues the orders for the adoption of the new rifle, equipment, and regulations. But during all this time various questions will constantly arise; delay or difficulty of manufacture, a new sight invented, a greater need of money for some other implement. These will be discussed with the Chief of Infantry, and only with the Chief of Staff or the Secretary in case a grave decision is required. Until a few years ago no such system could possibly have been applied in our service. In the old days the Ordnance Department would have decided upon a weapon, necessarily from a technical point of view, received the approval of the Secretary, and proceeded to make it.

Did the problem consist in the defense of a harbor, with all the intricate and interdependent matters to adjust between many agencies of execution, the case presented to the General Staff is far from being as simple as the one above. Here political and local questions arise, the work involves the Engineers, Coast Artillery, Ordnance, Signal Corps, Quartermaster and Navy Departments, and to suppose that a Secretary of War, whatever his genius, or a Chief of Staff, unaided or deprived of real authority, could decide plans and adjust difficulties as they arise, is to deny all human experience. Carefully trained organs of study and decision as well as of execution are absolutely necessary, and these in all armies are furnished by a well-organized General Staff.

Let us take another case: Suppose that after conferring with his advisers, the Secretary of War decides to organize, equip, and send

to France five regiments of Field Artillery of a special description. The time which he has given to the study and decision of question itself is all that should be expected of him regarding it. In a well-organized war office the execution of this decision would be naturally given first to the Chief of Staff, since it requires the coordination of several departments; but he would depute to the Chief of Field Artillery the immediate supervision of the arrangements, since it concerns his arm. This officer would make general but not detailed studies and turn them over to the various supply departments for execution, and he would see to this execution, coordinate it as to time and place, seek to adjust inevitable clashing of interests, or present them with his opinion to his chief.

The Quartermaster Department would be called upon for vehicles, animals, and clothing, the Ordnance Department for the guns and equipment, the recruiting division for men, and finally the transportation division would be asked to deliver the batteries in France at the time decided upon. The Chief of Field Artillery would himself have prepared, through the agencies of his own office, the special drill regulations required for the new weapons.

To give another illustration, it will be recalled that I have related above that the War College division had prepared a large number of pamphlets of instruction, information, and drill, embodying the most recent and secret ideas and practice concerning each arm of the service. These were furnished us by the allied countries after we entered the war. To give practical effect to this information required a selection of what was needed in each branch of the service and an order putting into effect the new system, drill, etc. This is a matter of the greatest delicacy and importance to any arm and requires, on the part of the person deciding, technical knowledge and experience, time for study and selection, authority to decide.

As regards the Engineers, the Medical Department, or the Coast Artillery, the matter was exceedingly simple, their respective chiefs having all the necessary elements for rapid and wise decision; but for the Infantry and Machine Guns, the Cavalry and the Field Artillery, there was no general officer to whom this decision legally, or, as a matter of routine, pertained, except Gen. Bliss, Gen. Kuhn, Gen. McCain, or myself. Not one of us could pretend to the technical knowledge necessary to select new drill regulations for three arms; not one of us could possibly devote the needful time to the study of the question. All that any one of us did have was the prestige and authority that belonged to the office he held.

Had there been chiefs of arms with suitably organized assistants, the excellent work of the War College division would have been followed by rapid examination and authoritative selection and application, coming from an acknowledged, qualified source, of the things most necessary and applicable to each arm.

Imagine the Coast Artillery to-day without a chief and its officers dependent directly upon The Adjutant General and the Chief of Staff for the transaction of all the business pertaining to that arm! And yet the outbreak of war has affected the Coast Artillery only in the smallest degree as compared with the tremendous expansion, changes of weapons, and other great problems, which have to be met by the Field Artillery and the Infantry.

APPENDIX II.

WAR DEPARTMENT,
Washington, September 13, 1916.

Opinion by the Secretary of War on the effect of section 5 of the national defense act:

The provisions of section 5 of "An act for making further and more effectual provision for the national defense, and for other purposes," approved June 3, 1916, relating to the General Staff Corps, call for an opinion from the Secretary of War as to their effect upon the transaction of the business of the department and the relations to exist in the future between the Chief of the General Staff and the heads of various bureaus of the War Department.

Section 5 provides that the General Staff Corps shall consist of one Chief of Staff, detailed in time of peace from major generals of the line, and various other officers, for some of whom specific duties are provided, as for instance that one of them is required to be president of the Army War College. The General Staff Corps is made a detailed corps, with the result that upon being relieved from duty in that corps officers return to the branch of the Army in which they were permanently commissioned, and no officer detailed to the General Staff Corps is eligible to a further detail therein until he shall have served two years with the branch of the Army in which commissioned, except in time of actual or threatened hostilities. Thus, the General Staff Corps is made to consist of a constantly changing detail of officers brought from the line of the Army and returned thereto, with the apparent purpose of having this corps represent and embody the opinion of the Army upon technical military subjects, as that opinion is matured and developed from time to time by actual experience, and careful provision is made against the General Staff Corps becoming a permanent body disassociated from the actual military forces of the Nation and, therefore, to a greater or less extent, out of touch with the opinion of the active Army.

So far as the duties assigned to the General Staff Corps by section 5 of the national defense act are concerned, they are covered by the following language:

All officers detailed in said corps shall be exclusively employed in the study of military problems, the preparation of plans for the national defense and the utilization of the military forces in time of war, in investigating and reporting upon the efficiency and state of preparedness of such forces for service in peace or war, or on appropriate General Staff duties in connection with troops, including the National Guard, or as military attachés in foreign countries, or on other duties, not of an administrative nature, on which they can be lawfully and properly employed.

Certain redistributions of functions are made by the act, the most notable being the abolition of the mobile Army division and Coast

Artillery division, the latter of which is created into a bureau of the War Department, and the business of the former is committed to the office of The Adjutant General. But scattered through this section there are statements of this import:

That the War College shall remain fully subject to the supervising, coordinating, and informing powers conferred by law upon members of the General Staff Corps.

That the bureau of The Adjutant General shall—

Subject to the exercise of the supervising, coordinating, and informing powers conferred upon members of the General Staff Corps by act of Congress last hereinbefore cited—

perform the business heretofore performed by the mobile Army division, and that—

The Chief of Coast Artillery shall be an additional member of the General Staff Corps and shall also be advisor to and informant of the Chief of Staff in respect to the business under his charge.

And then follows certain restrictive language which calls for this opinion. The language is as follows:

Provided further, That hereafter members of the General Staff Corps shall be confined strictly to the discharge of the duties of the general nature of those specified for them in this section and in the organic act of Congress last hereinbefore cited, and they shall not be permitted to assume or engage in work of an administrative nature that pertains to established bureaus or offices of the War Department, or that, being assumed or engaged in by members of the General Staff Corps, would involve impairment of the responsibility or initiative of such bureaus or offices, or would cause injurious or unnecessary duplication of or delay in the work thereof.

It will be observed that the section under review does not negative the survival of the "supervising, coordinating, and informing powers" conferred by law upon members of the General Staff Corps, but, on the contrary, reiterates those powers, and in the transfer of certain business in the War Department from divisions abolished by the act expressly subjects those powers in the hands of the new donees to the General Staff powers either enumerated in this section or incorporated into it by reference to the act approved February 14, 1903, which created the General Staff Corps, no part of which act is in express terms repealed. It seems clear, therefore, that the new part of this legislation, namely, that restricting the work to be done by members of the General Staff Corps to work of a nonadministrative nature is the only phase of it calling for interpretation, and it is equally clear that this interpretation must proceed upon the foundation established by an understanding of the intention of Congress, as expressed in the act of February 14, 1903, which is not only the act by which the General Staff was established, but is plainly the act assumed by Congress as the fundamental and organic basis of whatever modifications are intended by section 5 of the act of June 3, 1916.

The development of a general scheme of systematic instruction in the Army, leading to the original War College Board, undoubtedly directed the attention of the Secretary of War to the general subject of Army organization. In the report for 1901 Secretary Root said:

The creation of the War College Board, and the duties which will be imposed upon it, as indicated in my report for 1899, is probably as near an approach to the establishment of a General Staff as is practicable under existing law. * * *

No one can doubt that the general and field officers of our Army have been too exclusively occupied in details of administration, with inadequate opportunity and provision for the study of great questions, and consideration and formation of plans, comprehensive forethought against future contingencies, and coordination of the various branches of the service with a view to harmonious action. A body of competent military experts should be charged with these matters of the highest importance, and to that end I strongly urge the establishment by law of a General Staff, of which the War College Board shall form a part.

In the Annual Report for 1902, Secretary Root returns to this subject and argues it at considerable length, showing continuous improvement in Army organization, but saying:

Our military system is, however, still exceedingly defective at the top. We have a personnel unsurpassed anywhere, * * * We have the different branches of the military service well organized, each within itself, for the performance of its duties. Our administrative staff and supply departments, as a rule, have at their heads good and competent men, faithful to their duties, each attending assiduously to the business of his department.

But when we come to the coordination and direction of all these means and agencies of warfare, so that all parts of the machine shall work true together, we are weak. Our system makes no adequate provision for the directing brain which every army must have to work successfully. Common experience has shown that this can not be furnished by any single man without assistants, and that it requires a body of officers working together under the direction of a chief and entirely separate from and independent of the administrative staff of an army. * * * This body of officers, in distinction from the administrative staff, has come to be called a General Staff.

The whole discussion of this subject by Secretary Root is informing, and in order to get an understanding of the full weight of the argument made, all that is said on that subject in his report should be examined. The following sentences, however, are indicative of the thought in his mind:

Such a body of men doing general staff duty is just as necessary to prepare an army properly for war in time of peace as it is in time of war. It is not an executive body; it is not an administrative body; it acts only through the authority of others. It makes intelligent command possible by procuring and arranging information and working out plans in detail, and it makes intelligent and effective execution of commands possible by keeping all the separate agents advised of the parts they are to play in the general scheme. * * *

The title of Chief of Staff, on the other hand, denotes a duty to advise, inform, and assist a superior officer who has command, and to represent him, acting in his name and by his authority in carrying out his policies and securing the execution of his commands. The officer who accepts the position assumes the highest obligation to be perfectly loyal to his commander, to exclude all personal interest from his advice and representation and to try in the most whole-hearted way, to help him to right conclusions and to successful execution of his policies, even though his conclusions may not agree with the advice given. For the successful performance of his duties the Chief of Staff must have the entire confidence of his commander. * * *

"The Constitution requires the President to be the commander of the Army, and a great variety of laws require the Secretary of War, who directly represents the President, to supervise and direct the expenditure of the vast sums of money appropriated annually by Congress for the support of the Army. As every important movement requires the use of money, so long as the Secretary of War performs this duty faithfully he must practically control the operations of the Army in time of peace, and there can not be any independent command of the Army, except that which the President himself exercises over the Secretary of War and everybody else in the Military Establishment. It is because Congress has always looked to the civilian Secretary at the head of the War Department to hold the purse strings that the laws require all the great departments which build the fortifications and furnish the arms, supplies, and munitions of war, and actually expend the money for those purposes, such as the Engineer, Ordnance, Quartermaster's, and Subsistence Departments, to act

under the direction of the Secretary, and withhold from the officer who is called "commanding general of the Army" all control over those departments.

Continuing the argument thus made, Secretary Root shows that the office of commanding general of the Army and the powers conferred upon that officer were entirely inconsistent with and inadequate for the duty contemplated for the Chief of Staff, which office he sought to have established. For the latter office he desired powers of coordination, supervision and control, in the name of the Secretary of War and under the direction of the Secretary of War, wholly different from and greater than those previously intrusted to the commanding general of the Army.

In his report for 1903, after the passage of the act of February 14, 1903, Secretary Root says:

The important military event of the year affecting the Regular Army has been the reorganization of the system of military control under the General Staff act approved February 14, 1903. * * * This act abolished the separate office of Commanding General of the Army, provided for a military Chief of Staff to the President, who, acting under the directions of the President, or of the Secretary of War representing him, should have supervision not only of all troops of the line but of the special staff and supply departments which had theretofore reported directly to the Secretary of War; and it created for the assistance of the Chief of Staff a corps of 44 officers, who were relieved from all other duties.

After describing the mode of organization of the first General Staff Corps, Secretary Root says:

The tenth article of the regulations relating to the Chief of Staff states explicitly the new theory of control inaugurated by the General Staff act.

That new theory he quotes from the regulations to be as follows:

10. Under the act of February 14, 1903, the command of the Army of the United States rests with the constitutional Commander in Chief, the President. The President will place parts of the Army, and separate armies whenever constituted, under commanders subordinate to his general command; and, in case of exigency seeming to him to require it, he may place the whole Army under a single commander subordinate to him; but in time of peace and under ordinary conditions the administration and control of the Army are effected without any second in command.

The President's command is exercised through the Secretary of War and the Chief of Staff. The Secretary of War is charged with carrying out the policies of the President in military affairs. He directly represents the President and is bound always to act in conformity to the President's instructions. Under the law and the decisions of the Supreme Court his acts are the President's acts, and his directions and orders are the President's directions and orders.

The Chief of Staff reports to the Secretary of War, acts as his military advisor, receives from him the directions and orders given in behalf of the President, and gives effect thereto in the manner hereinafter provided.

Secretary Root then says, with his customary clarity and decision of expression:

It will be perceived that we are here providing for civilian control over the military arm, but for civilian control to be exercised through a single military expert of high rank, who is provided with an adequate corps of professional assistants to aid him in the performance of his duties, and who is bound to use all his professional skill and knowledge in giving effect to the purposes and general directions of his civilian superior, or make way for another expert who will do so.

Commenting upon the effect of the inauguration of the system, Secretary Root says:

In some cases the intervention of the Chief of Staff and his assistants has resulted in an apparent diminution of the independent authority of other

officers. This has been received almost universally with a cheerful readiness to subordinate personal considerations to the good of the service.

The act of February 14, 1903, is universally regarded as the most important piece of Army legislation adopted in recent years. It was recognized at the time as a thoroughgoing and radical change in the theory of Army control. Not unnaturally this act received very earnest consideration in Congress prior to its passage. The hearings on it were extensive, and Secretary Root, one of the foremost lawyers of the country and one of the great Secretaries of War of modern times, in his appearances before committees illustrated and reiterated the purpose and meaning of the measure advocated by him. I have examined those hearings with some care and I find that, without exception, witnesses and members of both House and Senate understood the purpose of the act to be as gathered from the previous quotations from the annual reports of Mr. Root as Secretary of War. Thus, in his hearing before the Senate Committee on Military Affairs, Secretary Root says:

You have imposed by law upon the Secretary of War the responsibility for the expenditure of great sums of money which you appropriate every year, and you have established a great number of corps, bureaus, and departments which the Secretary is bound to supervise. Now, I have doubt whether it is competent for the Secretary of War to do that through the intermediation of a chief of staff or a general staff unless there is some statutory authority. I do not know whether in the face of the statute which makes the Quartermaster General and the Commissary General and the Chief of Ordnance directly responsible to the Secretary of War, I can order them to report to a chief of staff.

I do not want you to relieve the Secretary of War of responsibility, but I want you to enable him to discharge that responsibility through a military officer who will gather together in the performance of staff duties all the considerations affecting the decision that the Secretary has to make, and do it with military knowledge, instead of the Secretary having to dig around and gather them himself and collate the advice and requests that come from the heads of these different departments that are all overlapping and interwoven in their action.

In short, I think nothing can be clearer from the written opinions of the Secretary of War whose suggestions are responsible for the creation of the General Staff, and from the hearings before the committees of Congress and the debates in the Congress upon the passage of the General Staff bill, than that it was intended to supply to the Secretary of War a lawfully authorized military advisor to whom all other heads of departments and bureaus should report, and through whom the Secretary of War should be constantly kept advised and informed; that it should be the duty of this officer, aided by the General Staff Corps created by the act, so to advise himself of all operations of the military departments and bureaus of the War Department as to inform the judgment of the Secretary upon any question submitted for his decision, and by correlating, coordinating, and supervising the judgments of the various heads of bureaus and subdepartments be able to prevent a civilian Secretary of War from inadvertent error, due either to a lack of familiarity with military matters or to the vast pressure of business of many and diverse characters which too far absorb the time of the Secretary of War to permit him, personally, to undertake the detailed study necessary in each case.

It was out of this atmosphere and with this intention that the act of February, 1903, was passed, and the language adopted to

meet this situation seems most apt and adequate. I quote from the statute:

There is hereby established a General Staff Corps, to be composed of officers detailed from the Army at large, under such rules as may be prescribed by the President.

Sec. 2. That the duties of the General Staff Corps shall be to prepare plans for the national defense and for the mobilization of the military forces in time of war; to investigate and report upon all questions affecting the efficiency of the Army and its state of preparation for military operations; to render professional aid and assistance to the Secretary of War and to general officers and other superior commanders, and to act as their agents in informing and coordinating the action of all the different officers who are subject under the terms of this act to the supervision of the Chief of Staff; and to perform such other military duties not otherwise assigned by law as may be from time to time prescribed by the President.

Sec. 4. That the Chief of Staff, under the direction of the President or of the Secretary of War, under the direction of the President, shall have supervision of all troops of the line and of the Adjutant General's, Inspector General's, Judge Advocate's, Quartermaster's, Subsistence, Medical, Pay, and Ordnance Departments, the Corps of Engineers, and the Signal Corps, and shall perform such other military duties not otherwise assigned by law as may be assigned to him by the President. Duties now prescribed by statute for the commanding general of the Army as a member of the Board of Ordnance and Fortification and of the Board of Commissioners of the Soldiers' Home shall be performed by the Chief of Staff or other officer designated by the President.

If this act means anything, it means that in large and general terms the Chief of Staff thereby authorized has supervision of the corps, bureaus, and departments therein enumerated, and the large and generous terms employed indicate the plain intention of Congress to empower the Chief of Staff to stand in the relation of military aid and advisor to the Secretary of War, and, acting in his name, so to direct the activities of the heads of bureaus and sub-departments as to coordinate and harmonize their activities.

If the large and general purpose outlined in the foregoing paragraph has been changed by the language of section 5 of the national defense act, that change must result from these words:

All officers detailed in said corps shall be exclusively employed * * * on other duties, not of an administrative nature,

or from these words in the proviso:

* * * and they shall not be permitted to assume or engage in work of an administrative nature that pertains to established bureaus or offices of the War Department, or that, being assumed or engaged in by members of the General Staff Corps, would involve impairment of the responsibility or initiative of such bureaus or offices, or would cause injurious or unnecessary duplication or of delay in the work thereof.

The weighty part of this language apparently is the prohibition upon members of the General Staff from performing duties of an administrative nature, and we are called upon, therefore, to determine what was meant by the words "administrative duties" in this act.

At the outset it would seem obvious that no such glancing blow as this could have been intended as an implied repeal of the whole fundamental theory of the reorganization act whereby the General Staff was created. It is fair to assume that Congress did not intend to inaugurate a race for power among bureau chiefs or to erect the bureaus of the War Department into a system of coordinated impedi-

ments to one another. It must not be forgotten that the Army is a whole—divided for the purposes of administration into many parts—but each action by any of the parts must be consistent with the healthy action of the whole. A realization of this was the moving cause to the creation of the General Staff; and if the Congress had come to believe that its effort to correct the evils sought to be redressed by the creation of the General Staff was a failure, and that no such supervision and coordination as was then aimed at had resulted from the General Staff when created, and, so believing, had desired to abandon that experiment, it would not have been done by this tentative, obscure, and admonitory sentence. In other words, an evil of large proportions and menacing character had presented itself in 1903. Congress erected a new system to deal with that evil. If the system has failed and Congress is disillusioned with it as an experiment, the whole structure will be swept aside and some new corrective of the old evils attempted. But it is quite inconceivable that the Congress in any such frame of mind would merely paralyze without removing the corrective agency it had created and provide no substitute for it—restoring the old system with all of its evils and the added encumbrance of a paralyzed and inoperative machine originally designed as a corrective.

I have read the extremely able arguments which have been prepared for my consideration on this subject by the Judge Advocate General and others. To the extent that I am now disagreeing with the view therein expressed it seems to me that my disagreement is rather one of assumption than of logic. If it be assumed that a lot of promiscuous interferences, duplications, and losses of time had grown up in the operation of the General Staff system then the language adopted by Congress would seem to be an admonition to the Secretary of War to correct those difficulties; and to the Chief of the General Staff, recalling to his attention the primary purposes for which the General Staff was created, in order to prevent a practice growing up which would involve the operations of the General Staff in masses of detail and so far absorb its mind as to leave no leisure for the consideration of general policy questions, which are, of course, of great moment to be considered. It seems to me that the Judge Advocate General does assume that the Congress had in mind the existence of these duplications, interferences, and losses of time, and that, therefore, the Congress, by the use of the word "administrative," must have intended to provide a rule which would exclude the General Staff practically from every other concern except the consideration of large policy questions. I admit that where an evil exists and a legislative enactment is addressed to it the rule of interpretation seeks to expand the proposed remedy to accomplish the purpose for which it was designed. But the Congress had before it no catalogue of evils. No complaints were made to the Congress by the Secretary of War, who speaks with authority for the War Department, that he found himself unable to secure an adequate consideration of major policy problems from the General Staff because Congress had imposed conflicting duties upon the General Staff. Individual officers of the Army may have undertaken to express their opinion to members of the Congress about the exercise of the coordinating functions of the General Staff; but all such opinions are necessarily partisan and

partial; so that we must limit our assumption to the facts, and in so doing we find no system of facts adequate as a predicate for action by Congress which would destroy the power of the General Staff, bind the Secretary of War to rely upon the uncoordinated advice of individual bureau chiefs and, while giving the Chief of the General Staff the duty of coordinating the functions of the military bureaus of the department, at the same time prohibit that degree of supervision over the affairs of those bureaus which, in his judgment, is necessary to equip him with qualifying information.

As a matter of fact, the word "administrative" is one of extremely doubtful import. Legally it perhaps means, when applied to duties, such duties as involve no exercise of discretion. That is to say, if an officer is directed by statute to pay a dollar a day to each of 10 persons, no discretion is involved in his payments—his duty is administrative. If such an officer is authorized to pay a dollar a day to so many of a group of 10 persons as shall have lived up to a certain standard of performance in duties assigned them day by day, then the discretion of determining the merit of applicants for the pay is nonadministrative, because a discretionary duty. I doubt very much, however, whether this word was used in any such technical sense. The rule of construction in such cases is that unless there is something in the context to determine that a technical meaning is attached to a term, it will be assumed to be used in the plain, ordinary, and popular meaning of the word. Now, the plain, ordinary, and popular meaning of this term in this context obviously is that the Chief of the General Staff and the members of the General Staff Corps shall not administer the offices of the bureau chiefs. That is to say, that the Chief of the General Staff shall give no order to a subordinate of the Chief of Ordnance or The Adjutant General, for that would be the administration of that department, and such administration must proceed from the head of the department. Indeed, it seems to me entirely likely that the statute under examination provides its own definition of the meaning of the word "administrative," for it says, in effect, that these administrative duties are such as those which pertain—

* * * to established bureaus or offices of the War Department, or that, being assumed or engaged in by members of the General Staff Corps, would involve impairment of the responsibility or initiative of such bureaus or offices, or would cause injurious or unnecessary duplication of or delay in the work thereof.

These words last quoted supply all the guide necessary for a working definition of the word "administrative," and they enumerate the kind of acts which the Congress does not intend the General Staff to undertake. They are exactly the kind of acts which the original act creating the General Staff did not intend to assign to the General Staff. Secretary Root said the proposed duties are not administrative, are not executive, but are correlating, informing, supervising. So that we in effect have in this latest legislative expression a reiteration of the intentions of the Congress in the earlier act as defined and explained by the authority of the act and the policy which it embodied.

It seems to me, therefore, entirely clear that the structure erected by the act of 1903 remains as then created, except for the explicit modifications provided in the act of 1916 and not affecting the cur-

rent of this argument; that the Chief of the General Staff is charged with the supervision of the various departments, bureaus, and offices of the War Department for the purpose of coordinating their activities and for the purpose of so informing the judgment of the Secretary of War that he may not, by inadvertence or unfamiliarity with military practice, take action which would be prejudicial to harmonious results in the military service. Finding the intention of the act to be as here set forth, it is my opinion that the Chief of the General Staff is the primary adviser of the Secretary of War in all matters having to do with the military establishment; that in order properly to inform himself the Chief of the General Staff must know of the proceedings in the various bureaus, departments, and offices; that to as large an extent as possible the action of these bureaus, departments, and offices should be regulated by large policies laid down by the Secretary of War, the carrying out of which would involve merely administrative activity; but that in order to make sure that these policies are not being departed from or ought not to be changed, in order properly to harmonize the relations of several bureaus, it is not only appropriate but necessary for the Chief of the General Staff to pursue, with as great detail as his judgment dictates, the execution of these policies through the several bureaus.

It is easy to imagine a case in which the chief of a bureau or an officer would feel that some policy provided by the Chief of Staff in an effort to coordinate the work of several bureaus unduly restrained his activities, and that such a bureau chief would desire to argue personally for his point of view before the Secretary of War. In any such cases the Chief of Staff should secure a hearing for the bureau chief before the Secretary, and I have no doubt that any Chief of Staff or any Secretary of War would be very zealous to see that opinions earnestly entertained by officers were considered thoroughly, for after all we are all of us common servants with a common purpose in a common cause, and our zeal for particular branches of that service is merely a specialization of our zeal for the welfare and success of the larger whole which includes it. A recognition of this fact produced the spirit which Secretary Root referred to with so much pleasure immediately after the creation of the General Staff, in which slight irritations, due to the unaccustomed machinery, easily gave way and harmonious relations arose. This fine spirit for the public service is no less present now and will work as excellent results.

The policy of the War Department, therefore, will remain as heretofore. The Chief of Staff, speaking in the name of the Secretary of War, will coordinate and supervise the various bureaus, offices, and departments of the War Department; he will advise the Secretary of War; he will inform himself in as great detail as in his judgment seems necessary to qualify him adequately to advise the Secretary of War. Should any regulations or orders be necessary to place the determination herein made in proper form, the Chief of the General Staff will prepare them for my signature.

NEWTON D. BAKER.

REPORT OF THE ADJUTANT GENERAL.

REPORT OF THE ADJUTANT GENERAL.

WAR DEPARTMENT,
THE ADJUTANT GENERAL'S OFFICE,
October 6, 1917.

SIR: This report relates to the organization and operations of the Army and of the National Guard in the Federal service, as shown by the records of The Adjutant General's Office, and to the business of that office as a bureau of the War Department. The report covers the entire fiscal year ended June 30, 1917, and in discussing some subjects is extended beyond that date in order to give complete data regarding those subjects. For comparative purposes the general style of previous reports is followed in this one, although it has been advisable, on account of conditions incident to the present war, to omit tables published in preceding reports, such as movements of troops and strength of troops serving outside the continental limits of the United States.

AUTHORIZED STRENGTH OF THE REGULAR ARMY.

The authorized strength of the Regular Army on June 30, 1917, can not be furnished, because on that date the Army was in process of reorganization to meet the extraordinary conditions resulting from the war. However, the estimated prospective strength of the Regular Army was 18,033 officers and 470,185 enlisted men.

The material increase in the authorized strength, as compared with that of the preceding year, is due to the war conditions now existing.

ACTUAL STRENGTH OF THE REGULAR ARMY.

The actual strength of the Regular Army on June 30, 1917, by branches of service is shown in the following table:

Branches of service.	Officers.	Enlisted men.	Total.
General officers.....	35		35
Staff corps and departments.....	1,445	¹ 37,345	38,790
Engineers.....	277	7,952	8,229
Cavalry.....	1,011	35,353	36,364
Field Artillery.....	517	21,041	21,558
Coast Artillery Corps.....	800	31,352	32,152
Infantry.....	2,054	84,758	86,812
Miscellaneous.....		26,939	26,939
Total Regular Army.....	6,169	¹ 238,455	244,624
Philippine Scouts.....	163	5,570	5,733
Aggregate.....	6,332	¹ 244,025	250,357

¹ Includes 16,773 enlisted men of the Medical Department.

PHILIPPINE SCOUTS.

Pursuant to section 36 of the act of Congress approved February 2, 1901, each company of the Philippine Scouts was, by paragraph 1, section III, General Orders, No. 41, War Department, August 31,

1916, ordered to be organized as prescribed in section 17 of the act of Congress approved June 3, 1916, for a company of Infantry at normal strength. Changes in grade occasioned by this provision were made on September 1, 1916.

As set forth in paragraph 2 of the section and general orders cited above, the President authorized, under section 36 of the act of Congress approved February 2, 1901, a battalion headquarters company for each battalion, Philippine Scouts, heretofore or hereafter organized, for the proper control, administration, and supply of the battalion. The authorized strength of the battalion headquarters company so authorized is given in the paragraph of the general orders mentioned.

This change in the strength of the companies of the Philippine Scouts and the addition of the battalion headquarters company did not increase the authorized strength of the Scouts.

The Philippine Scouts are organized into 13 battalions of 1 headquarters company and 4 companies each, a total of 13 headquarters companies and 52 companies of enlisted natives of the Philippine Islands, with a total authorized strength of 182 officers and 5,733 enlisted men, which is the same as the strength authorized for the preceding year.

GEOGRAPHICAL DEPARTMENTS.

Under General Orders, No. 38, War Department, April 2, 1917, as amended by General Orders, No. 51, War Department, May 1, 1917, the existing orders establishing the geographical departments and the territorial organization thereunder in the United States were by direction of the President amended, to take effect May 1, 1917, so as to organize six of such departments with territorial limits as follows:

The Northeastern Department, to embrace the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut; headquarters at Boston, Mass.

The Eastern Department, to embrace the States of New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, the District of Columbia, the Canal Zone (see reference to General Orders, No. 76, below), and the Island of Porto Rico with the islands and keys adjacent thereto; headquarters at Governors Island, N. Y.

The Southeastern Department, to embrace the States of Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Arkansas, together with the coast defenses of Galveston; headquarters at Charleston, S. C.

The Central Department, to embrace the States of West Virginia, Kentucky, Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Missouri, Kansas, Nebraska, and Colorado; headquarters at Chicago, Ill.

The Southern Department, to embrace the States of Texas (except the coast defenses of Galveston), Oklahoma, New Mexico, and Arizona; headquarters at Fort Sam Houston, Tex.

The Western Department, to embrace the States of Washington, Oregon, Idaho, Montana, Wyoming, California, Nevada, Utah, and the Territory of Alaska; headquarters at San Francisco, Cal.

By section VI of General Orders, No. 76, War Department, June 26, 1917, so much of the above-mentioned General Orders, No. 51,

War Department, May 1, 1917, as relates to the Canal Zone was, by direction of the President, rescinded, to take effect July 1, 1917, and the Canal Zone was constituted a geographical department, to be known and designated as the Panama Canal Department, with headquarters at Ancon, Canal Zone.

In General Orders, No. 46, War Department, April 24, 1917, the prior orders organizing the Coast Artillery troops into districts were rescinded, and, by direction of the President, these troops serving within the continental limits of the United States were organized, to take effect May 1, 1917, into Coast Artillery districts to be embraced in the respective geographical departments mentioned, as follows:

North Atlantic Coast Artillery district, embraced in the Northeastern Department:

The coast defenses of Portland, Portsmouth, Boston, New Bedford, and Narragansett Bay; headquarters, Boston, Mass.

Middle Atlantic Coast Artillery district, embraced in the Eastern Department:

The coast defenses of Long Island Sound, eastern New York, southern New York, Sandy Hook, the Delaware, Baltimore, the Potomac, and Chesapeake Bay; headquarters, Fort Totten, N. Y.

South Atlantic Coast Artillery district, embraced in the Southeastern Department:

The coast defenses of the Cape Fear, Charleston, Savannah, Tampa, Key West, Pensacola, Mobile, New Orleans, and Galveston; headquarters, Charleston, S. C.

North Pacific Coast Artillery district, embraced in the Western Department:

The coast defenses of Puget Sound and the Columbia; headquarters, Seattle, Wash.

South Pacific Coast Artillery district, embraced in the Western Department:

The coast defenses of San Diego, Los Angeles, and San Francisco; headquarters, Fort Miley, Cal.

No change was made in the Philippine and the Hawaiian Departments.

SECOND LIEUTENANTS APPOINTED IN THE REGULAR ARMY.

The following table shows the number of second lieutenants appointed during the fiscal year ended June 30, 1917, and the sources from which and the arms in which they were appointed:

Arms to which assigned.	Appointed from—				
	Military Academy.	Regular Army, Philippine Scouts, and National Guard.	Officers' Reserve Corps and distinguished colleges.	Civil life.	Total.
Corps of Engineers.....	34	1	2	18	55
Cavalry.....	47	161	13	133	354
Field Artillery.....	27	98	9	100	234
Coast Artillery Corps.....	43	34	6	71	154
Infantry.....	110	378	34	361	883
Total.....	261	672	64	683	1,680

Under the provisions of the act of June 3, 1916, all appointments in the grade of second lieutenant in the Regular Army, other than graduates of the United States Military Academy, are provisional for a period of two years, and are made permanent at the close of that period if the appointees shall have demonstrated their suitability and moral, professional, and physical fitness for such permanent appointment. If an appointee fails to demonstrate his fitness for permanent appointment his appointment shall terminate.

The following table shows the number of second lieutenants appointed in the Regular Army, subsequent to June 30, 1917, and the sources from which, and the arms in which, they were appointed:

Arms to which assigned.	Appointed from—				
	Military Academy.	Regular Army, Philippine Scouts, and National Guard.	Officers' Reserve Corps and distinguished colleges.	Civil life.	Total.
Corps of Engineers.....	11	.....	.....	1	12
Cavalry.....	27	30	21	79	157
Field Artillery.....	18	18	12	49	97
Coast Artillery Corps.....	25	7	13	86	131
Infantry.....	67	52	35	138	292
Total.....	148	107	81	353	689

ADDITIONAL OFFICERS.

The Army appropriation act approved March 3, 1911 (36 Stat. L., 1058), provides that every line officer on the active list below the grade of colonel who has lost in lineal rank through the system of regimental promotion in force prior to October 1, 1890, may, in the discretion of the President and subject to examination for promotion as prescribed by law, be advanced to higher grades in his arm up to and including the grade of colonel, in accordance with the rank he would have been entitled to hold had promotion been lineal throughout the arm or corps to which he permanently belongs. It is also provided that officers advanced to higher grades under the law cited shall be "additional officers" in those grades.

All advancements under the provisions of that act that can be made have been made—a total of 51 to the grade of colonel (19 in the Cavalry, 2 in the Field Artillery, 6 in the Coast Artillery, and 24 in the Infantry). Of these all but 8 in the Cavalry, 2 in the Field Artillery, and 3 in the Infantry have been appointed brigadier generals, retired, or died, leaving 13 on the active list.

THE ADJUTANT GENERAL'S DEPARTMENT.

The total number of officers of The Adjutant General's Department on June 30, 1917, was 51, being an increase of 28 in the number reported the last fiscal year. Of the 51 officers constituting the department, 4 are permanent and 47 are detailed from the line of the Army.

Two of the detailed officers vacated their details by accepting appointments as brigadier generals in the Army, 5 were relieved, and 1 died. All were replaced by the detail of other officers during the year.

OFFICERS ON DETACHED SERVICE.

The detailed statement showing the character of duty performed by officers of the Army on detached service on June 30, 1917, is omitted from this report, as no useful purpose is now served by its publication, all restrictions upon the detail, detachment, and employment of officers and enlisted men of the Regular Army having been suspended for the period of the present emergency by section 11 of the act of May 18, 1917, entitled "An act to authorize the President to increase temporarily the Military Establishment of the United States."

However, the policy of the department has been to assign line officers to their organizations, relieving them from detached service. Whenever practicable to do so, retired officers have been placed upon active duty to perform the detached service previously performed by officers on the active list. Nearly all of the officers detailed as instructors at educational institutions are retired officers on active duty, and many retired officers have been placed on duty in the bureaus of the War Department, thereby making available line officers for duty with their organizations.

RETIRED OFFICERS ON ACTIVE DUTY.

On June 30, 1917, there were 315 retired officers under assignment to active duty. The following table shows the grades and employment of those officers:

	Lieutenant general.	Major general.	Brigadier general.	Colonel.	Lieutenant colonel.	Major.	Captain.	First lieutenant.	Second lieutenant.	Total.
At department headquarters.....				1	6	3	5	2		17
On recruiting service.....				5	7	20	25	11	2	70
With National Guard.....				5	2	8	6			21
At civil educational institutions.....				1	1	5	13	12		32
Office Chief of Staff.....			1							1
Army War College.....				1	2	2				5
The Adjutant General's Office.....				2	1	1				4
Quartermaster General's Office.....				1		1	1			3
Surgeon General's Office.....				2	1					3
Inspector General's Office.....					1					1
Judge Advocate General's Office.....							2			2
Office Provost Marshal General.....		1								1
Ordinance Department.....				3	1	2	2			8
Engineer Corps.....		1	2	6	2	1	1			13
Signal Corps.....					1		4	1	1	7
Militia Bureau.....						3	1			4
Office depot quartermaster.....						1	1			2
United States Military Academy.....				1			1			2
At Soldiers' Home.....	1			1		1				3
United States Shipping Board.....						1				1
Council of National Defense.....		1			1	1				2
Army Service Schools.....					1	1				1
Army Transport Service.....							1			1
Letterman General Hospital.....							1			1
Walter Reed General Hospital.....					1					1
Disciplinary Barracks.....								1		1
Office Secretary of State.....					1					1
At the White House.....						1				1
Fort Myer, Va.....							1	1		2
Fort Bayard, N. Mex.....							2			2
Recruit depots.....						1		5	4	10
Recruit camps.....				1						1
Citizens' training camps.....						1		1		2
Acting quartermaster.....						20	25	16		61
Examining Officers' Reserve Corps.....					1		1			2
Fort Leavenworth, Kans.....						1				1
War prison barracks.....				3	1	5	9	7		25
Total.....	1	3	3	33	30	79	102	57	7	315

Of the retired officers on duty, as shown in the foregoing table, 1 lieutenant general, 1 colonel, and 1 major (all at the United States Soldiers' Home in this city) received from the United States only the retired pay of their respective grades.

OFFICERS EXAMINED FOR PROMOTION.

During the fiscal year 2,512 officers of the Army were examined for promotion.

Of that number, 2,494 were found professionally qualified, 15 were found physically disqualified for promotion and were retired, 3 were found professionally disqualified and were suspended. One officer examined in the fiscal year of 1916 was reexamined and found qualified; 1 examined and found disqualified in 1916 was tried by general court-martial and dismissed; and 1 examined in the fiscal year 1916 and found professionally disqualified was ordered before a retiring board and wholly retired.

RETIRED OFFICERS.

On June 30, 1916, there were 1,017 commissioned officers on the retired list. During the fiscal year ended June 30, 1917, 108 officers were placed on that list. In addition to the officers of the Regular Army placed on the retired list during the year, 16 officers of the Philippine Scouts—8 captains, 5 first lieutenants, and 3 second lieutenants—were placed on a list of retired officers of Philippine Scouts as of the grades held by them as officers of said scouts, under the provisions of section 26 of the national defense act approved June 3, 1916. Fifty-three of the officers on the retired list died during the year, and 3 were restored to the active list as additional officers, under the provisions of the act of Congress approved March 4, 1915, leaving 1,085 officers, including those of the Philippine Scouts, on the retired list June 30, 1917. The table following shows the grades of officers on the retired list and the causes of the retirement of those officers:

Grades.	By operation of law, 64 years of age (act June 30, 1882).												
	On own applica- tion.				For disability.								
					In line of duty.								
	After reaching the age of 62 years (sec. 1244, R. S.).	After over 40 years' service (act June 30, 1882.)	After over 30 years' service (sec. 1243, R. S.).	With increase of one grade for service in connection with the construction of the Panama Canal (act of Mar. 4, 1915).	Sec. 1251, Revised Statutes.	With increased rank (acts of Oct. 1, 1890, Apr. 23, 1903, and Mar. 3, 1909).	With full rank of command when wounded (act of July 28, 1866).	Not in line of duty (sec. 1252, R. S.).	Sec. 26, act of June 3, 1916.	Sec. 16, act of June 3, 1916.	After failure to pass second professional examination (act of Mar. 3, 1909).	Under special acts of Congress.	Total.
Lieutenant general...	2	1	1	1	1							1	31
Major general...	18	0	62	1	13								3
Brigadier general...	72	5	15	41	36	3							171
Colonel...	59	5	36	41	36	3	1						180
Lieutenant colonel...	15	5	4	32	25	14							93
Major...	9			34	106	57	2	1					220
Captain...	4		7		123	58		2	2	2	3	6	203
First lieutenant...	3				52	29		1					80
Second lieutenant...	3				18							1	23
Chaplain:													
Lieutenant colonel...				1									2
Major...	1				10								14
Captain...	4				4								8
First lieutenant...	4				1								1
Philippine scouts:													
Captain...								28					28
First lieutenant...								16					16
Second lieutenant...								3					3
Total.....	194	13	112	130	8	389	161	3	7	47	7	3	1,085

Of the 3 officers retired under section 32 of the act of Congress approved July 28, 1866 (14 Stat. L., 337), on account of disability occasioned by wounds received in battle, with the full rank of the command held by them at the time such wounds were received, 1 was advanced two grades, and 2 one grade.

All of them, with the exception of the brigadier general, received a further advance of one grade under the act of Congress approved April 23, 1904 (33 Stat. L., 264). In addition to these, 59 brigadier generals, 12 colonels, 23 lieutenant colonels, 48 majors, 15 captains, and 1 first lieutenant hold their present grades on the retired list through an advancement of one grade under the act of Congress approved April 23, 1904, making a total of 161 officers on the retired list June 30, 1917, who have been advanced one grade under that act because of service during the Civil War.

The table following shows, by grades, the number of officers of the Army retired from active service during the fiscal year ended June 30, 1917, and the causes of their retirement:

Grades.	By operation of law 64 years of age (act of June 30, 1892).	On own application.			For disability.				Sec. 16, act of June 3, 1916.	Total.
		After over 40 years' service (act of June 30, 1892).	After over 30 years' service (sec. 1243, R. S.).	With increase of 1 grade (act of Mar. 4, 1915).	Incident to the service (sec. 1251, R. S.).	Not incident to the service (sec. 1252, R. S.).	Preventing promotion (acts Oct. 1, 1890, and Apr. 23, 1903).	Sec. 26, act of June 3, 1916.		
Major general.....		1			1					2
Brigadier general.....	8			1						10
Colonel.....	4	5	1		8					18
Lieutenant colonel.....							3			3
Major.....			1	1	5		4		2	13
Captain.....				1	16		13		3	33
First lieutenant.....	1					1	16		2	20
Second lieutenant.....	3						4			7
Chaplain.....	1				1					2
Philippine Scouts:										
Captain.....								8		8
First lieutenant.....								5		5
Second lieutenant.....								3		3
Total.....	17	7	2	3	31	1	40	16	7	124

COMMISSIONED OFFICERS WHO HAD CIVIL WAR SERVICE.

The official records show that of the 6,169 commissioned officers on the active list of the Regular Army June 30, 1917, none of them served in the Army, Navy, or Marine Corps during the Civil War otherwise than as a cadet prior to April 9, 1865.

There were 1,038 officers of the Army, other than Philippine Scouts, on the retired list June 30, 1917. Of these, 276 served in the Army, Navy, or Marine Corps, otherwise than as cadets, prior to April 9, 1865. The following table shows, by grades, the number of officers on the retired list of the Army on June 30, 1917, and the number of those officers who had Civil War service otherwise than as cadets prior to April 9, 1865:

Grades.	Officers on the retired list June 30, 1917.		
	Total.	Civil War service.	No Civil War service.
Lieutenant general.....	3	3	.....
Major general.....	31	23	8
Brigadier general.....	171	126	45
Colonel.....	180	16	164
Lieutenant colonel.....	93	28	65
Major.....	220	53	167
Captain.....	203	17	186
First lieutenant.....	89	3	86
Second lieutenant.....	23	.....	23
Chaplain:			
Lieutenant colonel.....	2	1	1
Major.....	14	6	8
Captain.....	8	.....	8
First lieutenant.....	1	.....	1
Total.....	1,038	276	762

It will be seen from the foregoing table that approximately 27 per cent of the officers of the Army on the retired list June 30, 1917, served as officers or enlisted men of the Army, Navy, or Marine Corps during the Civil War. On June 30, 1916, approximately 32 per cent of the officers of the Army on that list had Civil War service.

OFFICERS' RESERVE CORPS.

As set forth in my report for the fiscal year 1916, the Officers' Reserve Corps, authorized in the national defense act, approved June 3, 1916, was to be organized under such rules and regulations as the President might prescribe. The rules and regulations for the organization of the corps were printed in General Orders, No. 32, War Department, July 28, 1916, which were superseded by Special Regulations No. 43, War Department, dated March 29, 1917. At the close of the fiscal year last ended 21,543 officers had been commissioned in the Officers' Reserve Corps, divided as follows:

The Adjutant General's section.....	89
Judge Advocate General's section.....	20
Quartermaster's section	1, 272
Medical Department:	
(a) Medical.....	12, 223
(b) Dental.....	321
(c) Veterinary	415
Engineer section.....	2, 908
Ordnance section.....	486
Signal officers' section.....	481
(a) Aviation.....	135
Cavalry section.....	589
Field Artillery section.....	221
Coast Artillery section.....	78
Infantry section.....	2, 355

Prior to April 18, 1917, appointments in the staff sections were made upon the recommendation of examining boards, concurred in by the head of the staff corps concerned, and appointments in the line sections were made upon recommendation of examining boards, concurred in by the proper department commander. On the date mentioned examinations for line sections were discontinued, and thereafter commissions in the line sections could be obtained only by those who attended the training camps referred to in another paragraph of this report. All officers who had previously been commissioned in the line sections of the corps and all persons who had been examined prior to April 18, 1917, but not commissioned, were required to attend a training camp. Upon completion of the tour of duty at those camps both officers and candidates were recommended by the commanding officers of the camps for appointment with such ranks as their services at the camp merited. Those who failed to demonstrate their fitness for appointment were discharged. The fact that some of them had received appointment upon the recommendation of examining boards did not prevent their discharge. This method insured to each attendant at the camp an equal opportunity, based on demonstrated fitness, to obtain a commission.

The purpose for which the Officers' Reserve Corps was organized was to afford a means by which a large number of men could be selected and trained as officers for use in an emergency such as that

now confronting the country. That the provision of law that authorized the organization of the Officers' Reserve Corps is wise and effective is patent. Approximately 60,000 officers have been obtained up to the present time through the operation of that provision.

TRAINING CAMPS.

As set forth above, the organization of the Officers' Reserve Corps was the result of an effort to obtain and train in time of peace a large number of commissioned officers necessary in war or when war is imminent. When a state of war was declared to exist between the United States and Germany, the number of officers that had been commissioned in the Officers' Reserve Corps during the short period of its existence—less than one year—was insufficient to meet the demand caused by the increase in the Army made necessary by war; moreover, this demand could not be supplied from the other sources—West Point and civil life. It was decided, therefore, to establish officers' training camps as the most promising and expeditious means of supplying this immediate need for officers. These camps were established under authority contained in section 54 of the national defense act of June 3, 1916, and in section 1, act of May 18, 1917. The first series of camps, 16 in number, begun May 15, 1917, were under the supervision of department commanders, and were located in such territorial divisions as would, so far as the interests of the service permitted, result in the assignment of officers from each divisional area with troops raised from the same area. These camps were located as follows: Plattsburg Barracks (two), Madison Barracks, Fort Niagara, Fort Myer, Fort Oglethorpe, Fort McPherson, Fort Benjamin Harrison (two), Fort Sheridan (two), Fort Logan H. Roots, Fort Snelling, Fort Riley, Leon Springs, and the Presidio of San Francisco.

Prior to the opening of the training camps 7,957 officers had been commissioned in the Officers' Reserve Corps. They were required to attend these camps, either as instructors or students, as authorized in section 38 of the national defense act, and were subject to regrading or to discharge, in line with the policy adopted by the War Department to commission officers on the basis of demonstrated ability after three months' observation and training in officers' training camps.

In addition to the reserve officers above mentioned, something over 30,000 selected candidates for commissions reported at the camps for training. Of the total number in attendance, 27,341 were found qualified for commissions, and within 12 days after the first papers reached this office the preliminary work of preparing and examining lists of successful candidates was completed, and all of the 27,341 appointments were made in one day, or at a rate of more than 3,400 an hour, if based on an eight-hour day. This achievement is worthy of special mention, and reflects credit upon the office force, which cheerfully worked night and day, thus accomplishing a work more expeditiously than any like work previously done in this office. It should be added that the training given those who failed to receive commissions at the end of these camps was not wholly lost, either to the Government or to the men, since many of them were subsequently

enlisted and appointed noncommissioned officers in the National Army.

The courses of instruction at the camps were based on the experience of the armies engaged in the present war, the first requisites being thoroughness and precision in fundamentals and details, and designed to teach as comprehensively as possible in the short time available the duties of officers as (a) instructors, (b) managers, and (c) leaders. All who attended these camps were required to take the prescribed courses, subject only to the exceptions made in the cases of those who were designated as assistant instructors in particular subjects, they having already demonstrated their fitness for commissions. The result of this first series of camps is shown in the following table:

Branches of service.	Colonels. ¹	Lieutenant colonels.	Majors.	Captains.	First lieutenants.	Second lieutenants.	Totals.
Reserve Corps, National Army:							
Infantry.....	2	1	141	2,274	2,315	8,376	13,109
Cavalry.....			18	251	258	955	1,482
Field Artillery.....			25	547	684	2,799	4,055
Coast Artillery Corps.....			1	170	170	497	838
Engineers.....			50	419	747	750	1,966
Quartermaster Corps.....						3,067	3,067
Statistical.....					75	77	152
Ordinance:							
Supply.....				61	123	121	305
Machine-gun service.....					80		80
Regular Army:							
Infantry.....						1,375	1,375
Cavalry.....						178	178
Field Artillery.....						510	510
Coast Artillery Corps.....						224	224
Totals.....	2	1	235	3,722	4,452	18,929	27,341

¹ Appointed in 1916. Attended training camps and recommended for retention in service.

As will be seen from the foregoing table, the officers appointed from the first camps were mostly in the lower grades, there being but 238 above the grade of captain. The results obtained from the first series of camps was so satisfactory that it was decided to hold a second series to begin August 27, 1917, having the definite mission of producing a body of officers capable of filling the grades above lieutenant, as well as many of the places in that grade for the second increment of troops. Approximately 20,000 candidates are in attendance at these camps, which are located as follows: Plattsburg Barracks (two), Fort Niagara, Fort Myer, Fort Oglethorpe (three), Fort Sheridan (three), Fort Snelling, Fort Benjamin Harrison (two), Leon Springs (two), and the Presidio of San Francisco.

RETIRED ENLISTED MEN.

At the beginning of the fiscal year there were 4,154 men on the retired list created by the provisions of the act of Congress approved February 14, 1885 (23 Stat. L., 305), modified by the acts of Congress approved September 30, 1890 (26 Stat. L., 504), March 2, 1907 (34 Stat. L., 1218), and August 24, 1912 (37 Stat. L., 575).

During the fiscal year 342 enlisted men were placed on the retired list, 192 of the men on that list died, and 1 was transferred to the list

of retired commissioned officers of Philippine Scouts, under the provisions of the national defense act approved June 3, 1916, leaving 4,303 enlisted men on the retired list at the end of the fiscal year.

Section 7 of the selective service law, approved May 18, 1917, authorizes the employment on any active duty of retired enlisted men of the Regular Army, either with their rank on the retired list or in higher enlisted grades, with full pay and allowances of the grades in which they are actively employed. At the end of the fiscal year 151 retired enlisted men had been ordered to active duty under the provisions of that section.

PERSONS LISTED FOR APPOINTMENT AS OFFICERS IN THE ARMY IN TIME OF WAR OR OTHER EMERGENCY.

Section 53 of the national defense act, approved June 3, 1916, requires The Adjutant General, under the direction and supervision of the Secretary of War, to obtain, compile, and keep continually up to date all obtainable information as to the names, ages, addresses, occupations, and qualifications for appointment as commissioned officers of the Army, in time of war or other emergency, of men of suitable ages who, by reason of having received military training in civilian educational institutions or elsewhere, may be regarded as qualified and available for appointment as such commissioned officers.

In the execution of this law regulations were adopted and promulgated in War Department General Orders, No. 37, dated August 24, 1916, in which the qualifications of applicants for listing were set forth. Many persons have been listed in this office under the law in the various arms, staff corps, and departments, but the War Department having adopted a policy at the beginning of the present war not to issue a commission in the line sections to any person until such person had demonstrated his fitness for a commission under the observation of competent Regular Army officers at a training camp, none of the persons so listed has been appointed. However, in order that the Government might avail itself of the services of any on the list found to possess qualifications for a commission, all persons listed in the line sections of the Army, as well as all who had been registered under General Orders, No. 42, War Department, July 15, 1915, as qualified for appointment in the volunteer line sections of the Army, were on July 2, 1917, advised to present applications for admission to the second series of training camps. No data are now available as to the number of the persons referred to who are in attendance at those camps.

OFFICERS OF THE ARMY DETAILED AT CIVIL EDUCATIONAL INSTITUTIONS.

The laws and regulations governing the detail of officers to civil educational institutions as professors of military science and tactics are published in War Department General Orders, No. 70, 1913, and No. 49, 1916. Under those laws and regulations 95 officers (63 on the active list and 32 on the retired list) were serving as professors of military science and tactics on June 30, 1916. All active officers of the Army were relieved from duty at the close of the military course of the academic year 1916-17. The War Department con-

templates replacing these with suitable retired officers before the beginning of the next academic year.

As a result of the annual inspection of the military departments of educational institutions the following-named institutions were announced as the 15 "distinguished colleges" and the 10 "honor schools" whose students have exhibited the greatest degree of military training:

DISTINGUISHED COLLEGES.

Virginia Military Institute, Lexington, Va.
The Citadel, Charleston, S. C.
Norwich University, Northfield, Vt.
Cornell University, Ithaca, N. Y.
Harvard University, Cambridge, Mass.
St. John's College, Annapolis, Md.
University of Illinois, Urbana-Champaign, Ill.
University of Minnesota, Minneapolis, Minn.
University of California, Berkeley, Cal.
Oregon Agricultural College, Corvallis, Oreg.
Agricultural and Mechanical College of Texas, College Station, Tex.
University of Vermont and State Agricultural College, Burlington, Vt.
Purdue University, Lafayette, Ind.
Leland Stanford, Jr., University, Stanford University, Cal.
University of Georgia, Athens, Ga.

HONOR SCHOOLS.

St. John's School, Manlius, N. Y.
Kentucky Military Institute, Lyndon, Ky.
New Mexico Military Institute, Roswell, N. Mex.
Culver Military Academy, Culver, Ind.
Kemper Military School, Boonville, Mo.
St. John's Military Academy, Delafield, Wis.
College of St. Thomas, St. Paul, Minn.
Wentworth Military Academy, Lexington, Mo.
Western Military Academy, Alton, Ill.
Staunton Military Academy, Staunton, Va.

THE MILITARY ACADEMY.

On June 30, 1917, there were under assignment to duty at the United States Military Academy 69 commissioned officers (including 7 professors, 2 acting professors, and 2 associate professors), 1 librarian, 1 master of the sword, 1 teacher of music, 4 civilian instructors in languages, and 2 civilians employed as instructors in fencing, broadsword exercise, and military gymnastics, a total of 78. This is a decrease of 30 since July 1, 1916, the date of the superintendent's report for that year.

At the beginning of the academic year, September 1, 1916, there were 769 cadets on the rolls, including 4 Filipino cadets and 2 foreign cadets—1 from China and 1 from Cuba. Between September 1, 1916, and September 1, 1917, 57 cadets were discharged for deficiency in studies, 6 were discharged for physical disability, 2 were discharged for deficiency in conduct, 26 resigned, 3 died, 1 was dismissed, 1 foreign cadet (from Cuba) was dropped from the rolls, 2 were commissioned second lieutenants and placed upon the retired list of the Army, and 289 (139 in April, 1917, and 150 in August, 1917), including 3 Filipino cadets, were graduated. In September, 1916, 1 foreign

cadet, from China, and 1 National Guardsman were admitted; in January, 1917, 1 ex-cadet was admitted as the result of a reexamination under the provisions of an act of Congress approved August 11, 1916; in June, 1917, 357 cadets were admitted; in July, 1917, 4 were admitted; and in August, 1917, 1 cadet and 7 ex-cadets were admitted.

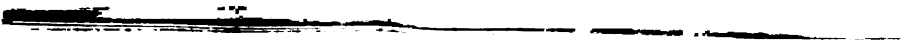
On September 1, 1917, the beginning of the current academic year, there were 754 cadets on the rolls, including 1 Filipino cadet and 2 foreign cadets from China. Those cadets were divided among the four classes as follows: First class, 2; second class, 140; third class, 247; fourth class, 365. The first class (class of 1918) was graduated August 30, 1917, but 2 of its members had been court-martialed, and their cases had not been finally disposed of; consequently the graduation of these cadets was suspended. One has since been dismissed by sentence of general court-martial and the other graduated.

The usual examination of candidates for admission to the Military Academy was held at various military posts, beginning March 20, 1917. For that examination 1,243 candidates were designated, and the results are shown in the following table:

Admitted.....	360
Sick and unable to report.....	16
Qualified physically, disqualified mentally.....	366
Failed to report for examination.....	292
Qualified mentally, did not report for physical examination.....	13
Qualified physically, withdrew from mental examination.....	3
Withdrew.....	18
Qualified candidates for whom no vacancies existed.....	44
Disqualified mentally and physically.....	58
Qualified mentally, disqualified physically.....	25
Qualified for admission, but declined appointment.....	7
Qualified physically, declined to take mental examination.....	2
Not permitted to take examination—reported late.....	21
Failed to complete examination.....	24
Appointment canceled.....	1
Disqualified mentally, failed to report for physical examination.....	11
Disqualified physically, withdrew from mental examination.....	1
Qualified physically, exempted from mental examination by inadvertence.....	1
Actual number of candidates.....	1, 243

The 16 candidates who were prevented by sickness from reporting on March 20 for examination were authorized, under paragraph 64 of the Regulations for the Military Academy, to report at West Point on June 12, 1917, for examination. Of that number, 1 was found qualified and was admitted, 9 qualified physically but failed to qualify mentally, 4 failed to report for examination, 1 was disqualified both mentally and physically, and 1 qualified mentally but was rejected by the medical officers.

Under the act of Congress approved May 4, 1916, to increase the corps of cadets, the number of cadets authorized for 1917 is 1,000, exclusive of the four Filipinos allowed by law. As there were 751 cadets on the rolls (excluding the Filipino and the foreign cadets) on September 1, 1917, there were 249 vacancies at that time. There were also three vacancies from the Philippine Islands. It should be noted, however, that this large number of vacancies is due in part to the early graduation of the class of 1918, with 148 members (exclusive of the Filipino cadets who were graduated), and that it is impracticable to fill the vacancies caused by that graduation prior to



the usual time, viz, June, 1918. Except for the early graduation of the class of 1918, the number of vacancies would be 101.

Information concerning the operation of the several academic departments, the enlarging of the Military Academy, discipline of the corps of cadets, and other matters of interest are to be found in the Annual Report of the Superintendent of the United States Military Academy. As it is customary to print that report with the reports of the War Department, further reference to those subjects is omitted from this report.

STRENGTH AND LOSSES OF THE REGULAR ARMY.

The tables facing show (A) the strength of the Regular Army of the United States on June 30, 1916, and June 30, 1917, with losses from all causes between those dates; (B) the strength and losses from all causes in the Regular Army in each month of the fiscal year; (C) the strength of the Regular Army by departments, etc., at the end of each month of the fiscal year; and (D) the number of deaths in the Regular Army during the fiscal year.

The losses in the Army during the year ended June 30, 1917, are summarized in the following statement:

REGULAR ARMY.

Officers:		
Died of disease, etc.....	44	
Resigned or discharged.....	24	
Dismissed.....	9	
Retired.....	108	
		185
Enlisted men:		
Died of disease, etc.....	940	
Discharged upon expiration of term of service.....	2,691	
Discharged for disability, by sentence of court-martial, or by order.....	9,447	
Deserted (includes deserters subsequently returned to military control).....	4,834	
Retired.....	417	
Transferred to the Reserve.....	2,597	
		20,926
Aggregate.....		21,111

PHILIPPINE SCOUTS.

Officers:		
Resigned or discharged.....	2	
Retired.....	16	
		18
Enlisted men:		
Died of disease, etc.....	14	
Discharged upon expiration of term of service.....	103	
Discharged for disability, by sentence of court-martial, or by order.....	83	
Deserted (includes deserters subsequently returned to military control).....	4	
Transferred to the Reserve.....	503	
		707
Aggregate.....		725

AGGREGATE.

Officers:		
Died of disease, etc.....	44	
Resigned or discharged.....	28	
Dismissed.....	9	
Retired.....	124	
		203
Enlisted men:		
Died of disease, etc.....	954	
Discharged upon expiration of term of service.....	2, 794	
Discharged for disability, by sentence of court-martial, or by order.....	9, 530	
Deserted (includes deserters subsequently returned to military control).....	4, 838	
Retired.....	417	
Transferred to Reserve.....	3, 100	
		21, 633
Aggregate.....		21, 836

As will be seen from the foregoing table, but 2,691 enlisted men were discharged from the Regular Army upon expiration of term of service during the year. This small number of discharges upon expiration of term of service is due to the fact that, owing to the Mexican border troubles and the war with Germany, no furloughs to the Reserve were made during the year, except in the Coast Artillery Corps. The act of August 24, 1912, provided that after November 1, 1912, all enlistments in the Regular Army should be for a period of seven years—four years with the colors and three years in the Reserve, or the soldier may be furloughed to the Reserve after an active service of three years. It will be seen, therefore, that under ordinary circumstances no discharges upon expiration of term of service would have been made during the fiscal year 1917. Those who were discharged during that year were men who had either absented themselves without leave or deserted from an enlistment entered into prior to November 1, 1912, and, after returning from such absence or desertion, were restored to duty and completed their term of enlistment after making good the time lost by their unauthorized absence. The number (2,597) transferred to the Reserve during the fiscal year 1917 should be included in the separation from service upon expiration of term of enlistment, for even though they have not been actually discharged, they have completed the term of active service for which enlisted. If this number be added the total number of separations from active service because of completion of term of enlistment, or that part of it calling for active service, is 5,288. During the preceding year the number of discharges upon expiration of active service was 10,419, and during the fiscal year 1916 the number was 27,020. Those numbers are, respectively, 2.04, 8.4, and 19.7 per cent of the whole number of enlisted men in service or of enlistment contracts in force during each of those years.

The losses from all causes other than completion of term of active service among enlisted men of the Regular Army during the fiscal year ended June 30, 1917, numbered 15,638, but from this number should be deducted the number (3,160) of deserters that returned to military control during the year, leaving 12,478 as representing the

number of losses during the year from causes other than completion of term of active service. During the preceding fiscal year these losses were 14,623, and during the fiscal year ended June 30, 1915, they were 14,517. Those numbers are, respectively, 6 (or 4.8 if the number gained from desertion is deducted from the total losses from desertion), 13.4 (or 11.8 upon deducting from the total losses the number returned from desertion), and 10.6 (no figures showing number returned from desertion were compiled for the year 1915) per cent of the whole number of enlistment contracts in force during the respective years.

DESERTIONS.

As shown by the official returns, the number of desertions from the Army during the fiscal year ended June 30, 1917, aggregated 4,834, which is 1.86 per cent of the whole number of enlistment contracts in force during the year. This is a material decrease as compared with the percentage (3.10) for 1916. The number of reported desertions during the year 1917 is 978 more than the number reported during 1916 and 399 more than the number reported during 1915. The increase in the number of desertions is due to the larger number of enlistment contracts in force during the year 1917.

Of the 4,834 cases of reported desertion during the year, 256 were declared erroneous, 3 of the men so reported were tried and acquitted of the charge, and 732 were tried and found guilty of the lesser offense of absence without leave, making a total of 991 cases improperly classed as desertions. If this number be deducted from 4,834 reported desertions, as shown by the returns, there remain but 3,843 cases, or 1.48 per cent, of actual desertions. However, this figure does not represent the actual number of desertions occurring during the year, because it is impossible at this time to even estimate the number of the men now regarded as deserters that will come under military control and be acquitted of the charge or be convicted of the lesser offense of absence without leave before the statute of limitations will apply in their cases. Under the law now in operation the trial of the men who enlisted and deserted during the fiscal year 1917 will not be barred by the statute of limitations until some time during the fiscal year 1920. Unless it can be assumed that all men reported as deserters during the year who do not return to military control or have not been tried before the annual report for that year is published can be classed as deserters, the actual number of desertions during the year can not be stated in the report for that year. As cases have arisen in which men have been convicted of absence without leave after having been absent more than two years from the date of their reported desertion, no such assumption is possible. As the figures hereafter given in this report are comparative, and because it is impossible to determine at this time how many of the men dropped as deserters during the year will ultimately be regarded as such, the number of reported desertions as shown by the returns will be used.

A comparison of the percentages of reported desertions in each of the past 20 years is shown in the following table:

Fiscal years.	Percentage deserted.	Fiscal years.	Percentage deserted.
1917.....	1.86	1907.....	5.62
1916.....	3.10	1906.....	7.43
1915.....	3.23	1905.....	6.79
1914.....	3.10	1904.....	6.61
1913.....	4.15	1903.....	7.10
1912.....	3.00	1902.....	5.00
1911.....	2.28	1901.....	4.12
1910.....	3.66	1900.....	4.09
1909.....	4.97	1899.....	3.22
1908.....	4.59	1898.....	1.57

The percentage of desertions during the year 1917 is lower than for any other year subsequent to 1898.

The following table shows the percentages of desertions occurring in each of the several periods of service during the past three years:

Period of service in which desertion took place.	Percentage of whole number of desertions.		
	Year ended June 30, 1917.	Year ended June 30, 1916.	Year ended June 30, 1915.
First 3 months of service.....	15	10	13
Second 3 months of service.....	16	11	17
Third 3 months of service.....	10	10	14
Fourth 3 months of service.....	5	8	10
First year of service.....	46	39	54
Second year of service.....	18	24	20
Third year of service.....	14	9	5
Fourth year of service.....	6	(¹)	.....
First enlistment.....	84	72	79
Second enlistment.....	12	21	16
Third enlistment.....	3	4	3
Fourth enlistment and subsequent enlistments.....	1	3	2
Total.....	100	100	100

¹ During the year 1916 there were 10 desertions during the fourth year of service, but as that number is less than one-third of 1 per cent it is not shown in this table. During the preceding years the enlistment period ended at the expiration of 3 years.

The percentages of desertions by branches of service during the fiscal years 1912-1917 are shown in the following table:

Branches of service.	Percentages.					
	1917	1916	1915	1914	1913	1912
Hospital Corps.....	2.20	4.15	4.64	3.34	4.24	3.08
Coast Artillery Corps.....	2.69	3.78	3.73	3.48	4.19	3.38
Cavalry.....	2.43	3.53	3.87	3.48	4.53	2.95
Field Artillery.....	1.23	3.43	4.82	5.20	6.11	4.07
Engineers.....	.76	2.58	4.08	2.94	4.68	4.26
Infantry.....	1.39	2.48	2.28	2.49	3.95	2.37
All others, including unassigned recruits.....	1.81	2.82	3.12	2.68	3.18	3.32
The Army.....	1.86	3.10	3.23	3.10	4.15	3.00

The foregoing statement shows a decrease in the percentage of desertions during the last fiscal year as compared with the year 1916 in each branch of the service.

As in the preceding reports, the percentages of desertion hereinbefore shown are based on the whole number of enlisted men who were in service at any time during the year and not on an average enlisted strength. All the losses during the year are included in the basic figures used, and those figures represent the whole number of enlisted men who might have become deserters or the whole number of enlistment contracts that might have been terminated by desertion at some time during the year. It is clearly improper to use as a basis for calculating the percentages of desertions a strength obtained by averaging the number of men in service at the end of each month of the year—a number that does not include men who went out of service during the year, and does not include even the deserters themselves. If, however, the average enlisted strength is used as a basis, it is found that the number of desertions from the enlisted force of the Regular Army during the year ended June 30, 1917, was 3.71 per cent of that strength, as compared with 4.07 per cent during the preceding year and 4.76 per cent during the fiscal year 1915.

An examination of the returns for the fiscal year ended June 30, 1917, was made for the purpose of ascertaining what organizations serving within the continental limits of the United States had the lowest and highest relative number of desertions. It should be borne in mind that in the following paragraphs, showing the results of that examination, the organizations that served a part or the whole of the year in Hawaii, Alaska, the Canal Zone, China, or the Philippine Islands are not taken into consideration, because in those regions it is unusually difficult for a deserter to make good his escape from military control, and consequently the number of desertions that occur there is so small as to be of no importance for the purpose of this report.

The regiments serving in the United States that had the lowest percentages of desertions during the year were the Twenty-sixth Infantry, Tenth Cavalry, and Sixteenth Infantry, the Tenth Cavalry being a colored organization, while the other two are white organizations. The desertions from those regiments were 0.80, 0.90, and 1.09 per cent, respectively, of the whole number of enlisted men in service, or enlistment contracts in force, in those regiments during the year. The Tenth Cavalry was one of the regiments having the lowest percentages of desertions during the years 1910 to 1916, inclusive, the percentages for those years being 1.52, 0.78, 1.52, 1.99, 1.42, 1.17, and 1.50, respectively.

As was the case during the years 1914, 1915, and 1916, the Third Field Artillery had the lowest percentage of desertions of any regiment of that arm serving in the United States, the percentage of desertions for that regiment being 1.56 for the year 1917, 3.96 for 1916, 4.57 for 1915, and 5.19 for 1914.

The three regiments that had the highest percentage of desertions were the First Cavalry, Eleventh Infantry, and Eighth Cavalry, the percentages of desertions from those organizations being 10.80, 8.74, and 6.44, respectively.

Of the white troops 1.90 per cent and of the colored troops 0.72 per cent were reported as deserters, as compared with 1.86 for the whole Army. The percentages for the fiscal year 1916 were: White troops, 3.72; and colored troops, 0.96.

The following table shows for each month of the fiscal years 1915, 1916, and 1917 the percentages of the total number of desertions occurring during each of those years:

Months.	Fiscal years.			Months.	Fiscal years.		
	1917	1916	1915		1917	1916	1915
July.....	8.92	12.16	10.30	February.....	7.34	5.91	5.84
August.....	11.92	12.52	11.41	March.....	12.52	5.37	7.08
September.....	10.34	10.43	9.56	April.....	5.52	6.92	9.43
October.....	10.22	8.58	8.12	May.....	4.80	7.49	10.35
November.....	9.02	7.06	5.89	June.....	3.95	12.68	11.23
December.....	7.94	5.50	5.79	Total.....	100.00	100.00	100.00
January.....	7.51	5.38	5.00				

It will be noted from the foregoing table that the percentage of desertions after the declaration of war (April 6) decreased markedly, and this in face of the well-known fact that the percentage of desertions is, under ordinary conditions, greatest during the spring and summer months.

During the fiscal year 1917 the ratio of foreign-born deserters to the whole number of deserters was approximately the same as the ratio of foreign-born men who have enlisted during the year to the total number of enlistments during the same period. This was true during the three preceding years, emphasizing the fact that nationality is not a factor in considering the subject of desertion.

Reports of return of deserters and escaped prisoners to military control during the year ended June 30, 1917, were received in 3,272 cases, not including 94 cases in which the deserters were found to be not amenable to trial because of the statute of limitations. Of the 3,272 returned to military control during the year, 1,691, or 51.68 per cent, surrendered themselves, and 1,581, or 48.32 per cent, were apprehended. Different from preceding years, the percentage of surrenders was higher than the percentage of apprehensions. During the preceding year the percentage of apprehensions was 60.14 and the percentage of surrenders 39.86.

The disposition of the 3,272 men returned to military control during the fiscal year is shown in the following table:

Disposed of without trial:

Charge removed as erroneous under paragraph 131, Army Regulations.....	256
Restored to duty.....	6
Discharged under paragraph 148½, Army Regulations.....	89
Discharged on surgeon's certificate of disability.....	1
Escaped.....	22
Died.....	4
Dropped, turned over to Navy.....	3

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Tried by court-martial:

Acquitted	3
Convicted of absence without leave—	
Not sentenced to discharge	652
Dishonorably discharged	68
Sentence of dishonorable discharge mitigated by reviewing authority	9
Sentence of dishonorable discharge disapproved by reviewing authority	2
Sentence of dishonorable discharge suspended, sentence uncompleted	1
Convicted of desertion—	
Not sentenced to discharge	44
Sentence of dishonorable discharge mitigated by reviewing authority	14
Sentence of dishonorable discharge disapproved by reviewing authority	7
Honorably restored to duty after being sentenced to dishonorable discharge	175
Sentence of dishonorable discharge suspended, sentence uncompleted	354
Dishonorably discharged and confined	1,340
	2,669
Reports of results of trial not yet received	222
Total	3,272

The lengths of sentences of confinement as approved in cases of men dishonorably discharged, not including men honorably restored to duty or serving under suspended sentences of dishonorable discharge, are shown in the following table:

Less than 3 months	19
3 to 6 months	282
7 to 12 months	32
Less than 1 year	333
1 year	436
1½ years	409
2 years	98
2½ years	39
3 years	21
3½ years	1
4 years	19
	1,356
No sentence of confinement	52
Total	1,406

GENERAL PRISONERS.

At the beginning of the fiscal year 1917 there were 2,295 general prisoners in custody. Of this number 205 were in confinement at military posts; 225 at the United States Penitentiary, Leavenworth, Kans.; 1,083 at the United States Disciplinary Barracks, Fort Leavenworth, Kans.; 430 at the Pacific Branch, United States Disciplinary Barracks, Alcatraz, Cal.; 311 at the Atlantic Branch, United States Disciplinary Barracks, Fort Jay, N. Y.; 33 at St. Elizabeths Hospital, Washington, D. C.; and 8 were in transit from one place of confinement to another.

During the year 3,960 were committed to confinement, 34 escaped prisoners were recaptured, 2,440 were released at expiration of sen-

tence, 51 escaped, 4 died, 442 were honorably restored to duty, and the unexecuted part of sentence was remitted in 279 cases, leaving 3,073 general prisoners in custody at the close of the year. Of this number 280 were in confinement at military posts; 2 at the United States Penitentiary, Atlanta, Ga.; 281 at the United States Penitentiary, Leavenworth, Kans.; 1,624 at the United States Disciplinary Barracks, Fort Leavenworth, Kans.; 494 at the Pacific Branch, United States Disciplinary Barracks, Alcatraz, Cal.; 317 at the Atlantic Branch, United States Disciplinary Barracks, Fort Jay, N. Y.; 40 at St. Elizabeths Hospital, Washington, D. C.; and 35 were in transit from one place of confinement to another.

Of the 3,073 general prisoners reported above as in confinement at the close of the fiscal year 111 were on parole from the United States Disciplinary Barracks or its branches.

As in previous years, applications for clemency in the case of prisoners undergoing confinement in execution of sentences of general courts-martial added materially to the correspondence of the office. At the beginning of the fiscal year 110 applications for clemency previously made had not received final consideration, they having been referred to the commanding generals of military departments or elsewhere in the course of investigation as to the merits of the cases. During the year 2,218 applications for clemency were received, but 247 of these were cases in which other applications were pending at the date of their receipt. Clemency was denied in 1,356 cases, the unexecuted parts of sentences were wholly remitted in 174 cases, parts of the unexecuted sentences were remitted in 134 cases, and in 119 cases reports were made to the Department of Justice for consideration in connection with applications for parole under the act of Congress approved June 25, 1910 (36 Stat. L., 819). Three prisoners were released prior to action on the application for clemency in their cases. At the close of the fiscal year 295 cases had not received final consideration, they having been referred to the commanding generals or others in the course of investigation as to the merits of the cases and not having been returned to this office before the close of the year.

The number of cases received does not represent the number of individual prisoners by whom, or in whose behalf, applications for clemency were made. In many cases as soon as one application is denied another is presented, as many as five consecutive applications having been received during the year in the case of one general prisoner. The 1,783 cases acted upon during the year were applications in the cases of 1,608 general prisoners, as against 2,066 applications in the cases of 1,836 general prisoners acted upon during the preceding year.

It has been the policy to give special recognition on the Fourth of July and Thanksgiving Day of each year to a limited number of general prisoners confined at the United States Disciplinary Barracks and its branches who have served not less than 18 months of their terms of confinement and who have the best records of conduct, and in accordance with that policy the unexecuted portions of the confinement of eight general prisoners were remitted during the fiscal year ended June 30, 1917.

The commandant of each of the barracks was authorized in December, 1915, to submit each year recommendations for the pardon at

Christmas time of not more than three general prisoners, without regard to the restrictions as to length of sentences imposed by the regulations with respect to the pardons authorized for July 4 and Thanksgiving Day. Accordingly, the sentences of nine general prisoners were remitted for Christmas, 1916.

In addition to the cases considered upon applications, the unexecuted parts of sentences in the cases of 53 general prisoners, and parts of the unexecuted sentences in the cases of 34 general prisoners, were remitted by the War Department for administrative reasons without applications for clemency having been made in their behalf.

UNITED STATES DISCIPLINARY BARRACKS.

A detailed statement relative to the financial and other affairs of the United States Disciplinary Barracks and its branches will be made to the Secretary of War in the near future for submission by him to Congress as required by law. It is believed, therefore, to be unnecessary to present in this report anything with regard to the financial affairs or any extended statement with regard to the other affairs of these institutions.

The following table shows the number of prisoners in confinement at the Disciplinary Barracks and its branches at the beginning of the year, the number of prisoners gained and lost during the year, and the number in confinement at the close of the year:

	United States Disciplinary Barracks, Fort Leavenworth.	United States Disciplinary Barracks, Pacific Branch.	United States Disciplinary Barracks, Atlantic Branch.	Total.
In confinement July 1, 1916.....	1,063	430	311	1,824
Gains:				
Commitments.....	2,057	818	442	3,317
Escaped prisoners recaptured.....	15	1	1	17
By transfer.....		49	44	93
Aggregate.....	3,155	1,298	798	5,251
Losses:				
Expiration of sentence.....	1,147	446	393	1,986
Remission of sentence.....	150	54	23	227
Honorably restored to duty.....	158	246	32	436
Escaped.....	28	4	3	35
Died.....	3	1		4
By transfer.....	45	53	30	128
Aggregate losses.....	1,531	804	481	2,816
In confinement June 30, 1917.....	1,624	494	317	2,435

The practice inaugurated in February, 1912, of separating as far as possible prisoners convicted of purely military offenses from those convicted of statutory or common-law crimes, with a view to afford the former every opportunity practicable to be restored to an honorable status, was continued throughout the year. Four disciplinary companies (formed into a battalion) and a disciplinary band have been organized at the United States Disciplinary Barracks, Fort Leavenworth, Kans.; four companies (formed into a battalion) and a band at the Pacific Branch, United States Disciplinary Barracks,

Alcatraz, Cal.; and one company and a band at the Atlantic Branch, United States Disciplinary Barracks, Fort Jay, N. Y. Men whose conduct is such as to entitle them to the privilege are assigned to these companies, in which they receive a special course in military training and instruction during one-half of each working day. The time thus devoted to military training would otherwise be expended by these men at hard labor. After he has been deemed to have made sufficient progress in his duties as a member of the disciplinary organization, the prisoner is permitted to file his application for honorable restoration to duty. A recommendation is finally made to the Secretary of War in these cases only after information has been obtained by the commandant from all available sources relative to the character and habits of the prisoner before his enlistment, during his enlistment, and while in confinement. If the prisoner's conduct and habits seem to have been such as to warrant favorable action, his honorable restoration to duty is recommended. After having been restored to duty the soldier usually is detailed for duty at the barracks for at least three months, upon the completion of which period he is regularly assigned to an organization.

Following is a statement of the number of men restored to duty during the year:

At United States Disciplinary Barracks, Fort Leavenworth, Kans.....	158
At Pacific Branch, United States Disciplinary Barracks, Alcatraz, Cal.....	246
At Atlantic Branch, United States Disciplinary Barracks, Fort Jay, N. Y....	32
At military posts.....	6
Total.....	442
Number heretofore restored to duty.....	407
Grand total.....	849

While it has been impracticable, owing to the great pressure of current work of the office, to make an examination of the records of these men for the purpose of making a detailed statement with respect to their service, as was done in my annual report for the fiscal year 1916, it may be stated that reports with regard to them, received from time to time from their commanding officers, indicate that the large majority of them are rendering good service, that many of them have been promoted to be noncommissioned officers, and that very few of them have deserted or otherwise failed to justify their restoration to duty.

As mentioned in my annual report for 1916, the Army appropriation act approved March 4, 1915, authorized the Secretary of War to establish a system of parole for prisoners confined in the United States Disciplinary Barracks and its branches, the terms and conditions of parole to be such as the Secretary of War might prescribe, and the parole regulations were approved by the Secretary of War and put into effect May 18, 1915.

On June 30, 1916, there were 11 applications for parole that had not received final consideration, and during the fiscal year ended June 30, 1917, there were received in this office 350 applications for parole from prisoners confined at the United States Disciplinary Barracks and its branches. Of these 361 applications, 273 were approved, 84 were disapproved, 1 was disposed of by remission of a large portion of the prisoner's sentence, and 3 had not received final consideration at the close of the fiscal year.

On July 1, 1916, there were 66 prisoners on parole, and during the year 256 prisoners were actually released on parole from the United States Disciplinary Barracks and its branches. Of these, 17 violated their parole, most of whom have been returned to the barracks to serve out the remaining portion of their sentences, 194 were discharged from custody while on parole on account of their terms of confinement having expired, and 111 were still on parole on June 30, 1917.

With the view of reducing the delay in the trials and favoring the expeditious arrival at the Disciplinary Barracks of those prisoners who would ultimately be confined there a plan was inaugurated in January, 1917, of sending prisoners to the United States Disciplinary Barracks, Fort Leavenworth, Kans., and the Pacific Branch, United States Disciplinary Barracks, Alcatraz, Cal., for trial, and for this purpose court-martial jurisdiction was granted to the commandants of the barracks mentioned in General Orders, No. 1, War Department, dated January 2, 1917. With respect to this method of procedure the commandant of the Fort Leavenworth Disciplinary Barracks makes the following comment in his annual report:

The establishing here in January of a general court-martial jurisdiction has enabled the medical examiners, now designated the department of psychiatry and sociology, to apply to prisoners awaiting trial the methods employed in the cases of general prisoners received from other jurisdictions. This has greatly facilitated intelligent action upon numerous cases of restoration to duty without trial, setting aside of charges of desertion as erroneous, and discharge for desertion and physical or mental disability. The department of psychiatry and sociology, working with the judge advocate of this jurisdiction, has been able to place before the reviewing authority at the time of the review of each case an accurate physical, mental, and sociological estimate of the accused which has greatly assisted the reviewing authority in his consideration of clemency and suspension of sentence to dishonorable discharge. Later the result of these examinations has enabled the commandant to place men in the disciplinary battalion directly upon publishing the order promulgating their sentences. The stimulus to an accidental offender of never having been in "numbers" is readily apparent.

On January 19 prisoners began to arrive at the Fort Leavenworth Disciplinary Barracks for trial, and up to the end of the fiscal year 593 had been received there, most of whose cases had been disposed of.

The commandant of the Pacific Branch, United States Disciplinary Barracks, states in his annual report that the "present policy of sending here for trial from the Western Department certain surrendered deserters has resulted in a decrease of time between surrender and publication of action of the court, with consequent reduction of overhead charge on the Government * * *."

Schools are maintained at the United States Disciplinary Barracks and its branches for the instruction of prisoners in the elementary branches, and vocational training has been inaugurated, to which all prisoners, no matter of what offenses they may have been convicted, are eligible, and the facilities therefor are being augmented as rapidly as practicable. The training includes the various trades, such as those of cook, barber, baker, tailor, cobbler, harness maker, stationary engineer, machinist, laundryman, plumber, blacksmith, tinsmith, carpenter, cabinetmaker, wheelwright, gardener, painter, stone mason, brick mason, printer, etc. This vocational training is

especially valuable to prisoners who are not eligible for restoration to duty or who do not desire to reenter the military service, because it fits them for some particular line of employment when they return to civil life. In this connection it may be stated that systematic efforts are made to obtain positions for prisoners upon their release from the barracks, with the result that good positions are secured for practically all worthy men who desire them.

WAR PRISONERS AND WAR-PRISON BARRACKS.

On July 14, 1916, a letter, of which the following is a copy, was addressed by the Secretary of the Navy to the Secretary of War:

The Navy Department is considering the question of prison camps for naval prisoners of war. Foreign practice places the permanent care of all prisoners of war, whether military or naval, under the Army. I am of the opinion that this is the logical procedure. If this plan meets with your approval I should be pleased to detail a naval officer to cooperate with an Army officer to be designated by you, in the formulation of plans and regulations for the transfer by the Navy to the Army of naval prisoners of war.

In line with the suggestion of the Secretary of the Navy, an officer of the General Staff was designated by the Secretary of War to cooperate with a naval officer in the formulation of plans and regulations for the transfer by the Navy to the Army of naval prisoners of war, and the Secretary of the Navy was so advised on July 25, 1916.

As the result of the consideration of the question a memorandum dated December 4, 1916, was addressed by the Chief of Staff to The Adjutant General, of which the following is a copy:

It is intended, in the event of war, that a division of your office, to be designated by you, shall have general charge of all matters connected with war prisoners. It is desired that you take such preliminary steps as may be necessary to enable this division, on the outbreak of war, to take up the work promptly in accordance with your plans. When your plans have been formulated you will make a report of the same to the Chief of Staff with recommendations for such action as may be necessary to carry them into effect.

The subject was taken up immediately in The Adjutant General's Office, and on February 5, 1917, the required report to the Chief of Staff was made, in which report were embodied proposed "Regulations for the custody of war prisoners, including nonmilitary persons interned during a time of war." The proposed regulations were approved by the Chief of Staff on March 29, 1917, and were published as "Special Regulations No. 62, Custody of War Prisoners (1917)." These regulations provide that in time of war all war prisoners, whether military, naval, or civilian, will be placed ultimately in the custody of the War Department, and that The Adjutant General will have general charge of all matters connected with such war prisoners. In the preparation of these regulations the provisions of The Hague Convention of 1907, relating to the treatment of war prisoners, were observed.

On March 17, 1917, six companies of the Seventeenth Infantry were ordered to Fort Oglethorpe, and six companies and headquarters of that regiment were ordered to Fort McPherson, to be used in guarding interned crews of the *Kronprinz Wilhelm* and *Prinz Eitel Friedrich*, then held by the Navy Department at the League Island Navy Yard, and which, by agreement, were to be

turned over to the War Department. After the erection of temporary stockades at each of the posts mentioned there were received at Fort Oglethorpe, on March 27, 1917, 383 interned Germans, and at Fort McPherson, on the same date, 411 interned Germans, from the League Island Navy Yard, being the crews of the vessels mentioned above.

Paragraph 2 of Special Regulations No. 62, referred to above, provides that on the outbreak of war The Adjutant General will recommend certain posts, reservations, or other places to be used for the internment of war prisoners, and will recommend additional places from time to time as they may be required, each such place to be designated "The War Prison Barracks (or Camp) ———." Accordingly, after the proclamation of the President on April 6 that a state of war existed between the United States and Germany, steps were taken looking to the organization of war prison barracks. Upon the recommendation of The Adjutant General it was announced in War Department General Orders, No. 54, dated May 3, 1917, that war prison barracks were established at Forts McPherson and Oglethorpe, Ga., and Fort Douglas, Utah. In the same order it also was announced that there would be organized at each of these barracks a guard company, with personnel as prescribed for guard companies at the United States Disciplinary Barracks, Fort Leavenworth, Kans., in paragraph 1, General Orders, No. 29, War Department, 1916. As thus organized the strength of each company was 100 enlisted men. The authorized strength of each of the guard companies was subsequently increased to war strength (150 enlisted men). As a nucleus for the formation of these guard companies a limited number of men was taken from the United States Disciplinary Barracks Guard companies at Fort Leavenworth, Kans., and Alcatraz, Cal. After the organization of the guard companies, the Seventeenth Infantry was relieved from guard duty at Forts McPherson and Oglethorpe.

Retired Army officers were selected as commandants of these barracks. They reported for duty early in May, 1917, and at once took charge of the work of constructing the necessary cantonments for the housing of war prisoners and the other necessary details connected with the organization of the barracks. When completed, under the present plans, each of the war prison barracks will have accommodations for about 1,800 prisoners.

Up to June 30, 1917, the number of prisoners received at each of the war prison barracks is as follows:

War Prison Barracks, Fort McPherson, Ga.:	
From Navy Department.....	417
From Department of Justice.....	2
Total	419
War Prison Barracks, Fort Oglethorpe, Ga.:	
From Navy Department.....	401
From Porto Rico	7
From Panama.....	56
From Department of Justice	27
Total	491
War Prison Barracks, Fort Douglas, Utah:	
From Navy Department.....	331

The prisoners confined at the war prison barracks on June 30 were not all of the German prisoners that were in the hands of the military authorities on that date, there being at that time 180 officers and men of the German Navy and merchant service interned at Schofield Barracks, Hawaii; 292 officers and crews of German and Austrian ships at Gallups Island, Boston, Mass.; 69 persons of German nationality interned in Panama; about 40 interned aliens held at various posts in the United States on the request of the Department of Justice; and a small number of interned Germans in Porto Rico. These do not, of course, include prisoners that were in the hands of the Department of Labor.

The provisions of all treaties and conventions, to which the United States is a signatory, relating to the treatment of war prisoners are being observed. Lists of the names and addresses of all prisoners received at the war prison barracks, as well as reports relating to the health of the prisoners, are promptly furnished to the State Department, for the home Government, as well as to the Red Cross. Applications of representatives of relief societies desiring to extend aid to the prisoners are welcomed, and receive favorable consideration so far as practicable.

The war prison barracks are well situated, the sanitary conditions are good, the prisoners are being furnished with plenty of wholesome food, there is ample room in the barracks for athletic games and other forms of physical exercise, efforts are made to effect the prompt delivery and dispatch of mail, and everything is being done for the comfort and health of the prisoners.

RESTORATION OF CITIZENSHIP AND REENLISTMENT OF MEN WHOSE SERVICE DURING THE LAST PRECEDING TERM OF ENLISTMENT WAS NOT HONEST AND FAITHFUL.

Applications were received during the year from 68 deserters for restoration of the rights of citizenship under the provisions of the act of Congress approved August 22, 1912 (37 Stat. L., 356). Favorable action was taken upon 67 of the applications, 1 of them being denied because the conduct of the applicant since his release from military control was not considered such as to justify favorable action.

Pursuant to the provisions of the act cited the enlistment (under certain conditions) of former soldiers whose service during their preceding terms of enlistment was not honest and faithful was continued during the fiscal year ended June 30, 1917, and 221 men who were granted permission to reenlist availed themselves of the privilege.

RECRUITING FOR THE REGULAR ARMY.

At the beginning of the fiscal year 1917 the general recruiting detail for the Regular Army consisted of 126 commissioned officers and 1,077 enlisted men, while at the end of that year 188 commissioned officers and 2,087 enlisted men were so detailed. Included in

the number of commissioned officers detailed at the end of the year were 75 officers regularly on duty at general recruiting depots and 113 officers on duty at recruiting stations. In the latter number are included 70 retired officers detailed on active duty under the provisions of the acts of Congress approved April 23, 1904 (33 Stat. L., 264), and May 18, 1917. Of the 75 commissioned officers detailed at general recruit depots 10 were retired officers, who were detailed on active duty under the provisions of the acts of Congress cited. Due to the increase in the strength of the Army authorized by law and rendered necessary by the extraordinary conditions arising within the period covered by this report and the consequent necessity for securing the large number of recruits authorized, the recruiting personnel has been increased in number to 2,275, the increase consisting of 62 commissioned officers and 1,010 enlisted men.

At the beginning of the fiscal year, 189 central recruiting stations were maintained. Within the fiscal year covered by this report the boundaries of the recruiting districts into which the country is divided were definitely fixed, each recruiting officer receiving definite instructions advising him of the exact territorial limits included in his district. This was rendered necessary in order to canvass more thoroughly the entire country to produce the recruits necessary and also in order to utilize to its fullest extent the authority conferred by the act of Congress approved June 3, 1916, permitting the President to utilize the services of postmasters in procuring recruits for the Army. As a necessary result it was imperative that the number of central recruiting stations be increased, and accordingly the number of such stations maintained on June 30, 1917, was 401. Of the latter number 64 were main stations, each in charge of a recruiting officer, and the remainder were stations auxiliary to the main stations. In 40 recruiting districts additional commissioned officers were assigned to assist the recruiting officer in charge, New York having 5, Chicago 4, San Francisco 3, Philadelphia 2, and 36 other stations 1 each of such additional officers. In addition to the main and auxiliary stations, temporary stations were opened and maintained after the increase in the Army was authorized, many of them being stations at which only one enlisted man was detailed and which were frequently moved from place to place in order to canvass more thoroughly and intensively the territory embraced in the various recruiting districts.

Within the fiscal year 1916 the largest number of stations of all kinds—main, auxiliary, and temporary—maintained in any one month was 366 and the smallest number was 94. The corresponding numbers for fiscal year covered by this report are 724 and 189, respectively. Due to the intensive system of recruiting thus authorized and to the activity of the officers and enlisted men on recruiting duty, as well as to the unusual conditions existing, a larger number of recruits were secured within the fiscal year covered by this report than have been secured in any other year in the history of recruiting for the Regular Army under the system of voluntary enlistment, as will more fully appear in the subsequent portion of this report.

The practice maintained for several years last past of sending applicants for enlistment accepted at the recruiting stations to the

recruiting depots for physical examination and enlistment was continued throughout the fiscal year with the same satisfactory results experienced in the preceding years. Due, however, to the large number of recruits procured, and for other reasons as well, it was necessary to utilize Fort Thomas, Ky., as a general recruit depot auxiliary to Columbus Barracks, and for that purpose a part of the permanent garrison of Columbus Barracks was removed to Fort Thomas. In the latter part of the year, also due to the organization of new regiments at various military camps, it was found to be desirable and economical to send recruits from recruiting stations directly to such camps for physical examination and enlistment after acceptance instead of sending them to recruiting depots for that purpose.

In this report, as in prior ones, included in the term "reenlistments" are those former soldiers who enlisted again within three months of the date of termination of their prior service and are thereby entitled, under existing law, to three months' additional pay, and continuous-service pay on any such enlistment, while under the term "enlistments" are included men of no previous service and also those men who having had former service did not enlist again within three months from the date of the termination of their former service.

Within the fiscal year 1917, enlistments and reenlistments for the Regular Army numbered 160,084, including 133,932 for the line of the Army, 11,628 for the Medical Department, 3,897 for the Quartermaster Corps, 9,723 for other staff departments, and 904 for the Philippine Scouts. The enlistments numbered 156,250, including enlistment of 5,531 men with former service. Of these enlistments, 130,967 (4,771 with former service) were for the line of the Army, 11,452 (250 with former service) for the Medical Department, 3,575 (229 with former service) for the Quartermaster Corps, 9,461 (212 with former service) for other staff departments, and 795 (69 with former service) for the Philippine Scouts. The reenlistments numbered 3,834, of which 2,965 were for the line of the Army, 176 for the Medical Department, 322 for the Quartermaster Corps, 262 for other staff departments, and 109 for the Philippine Scouts.

The plan authorized by the Secretary of War several years ago of furnishing recruits to organizations semiannually was adhered to as far as practicable, but in the latter part of the fiscal year, due to the organization of many new regiments, it was necessary to send recruits to those new regiments at the camps of organization when needed, regardless of the semiannual assignment authorized.

The number of those who applied for enlistment in the Army in each recruiting district, the number of such applicants accepted or rejected in each district, and the number of accepted applicants afterwards rejected at recruiting depots and depot posts are set forth in the following table:

Recruiting districts.	Number of applicants accepted.	Number of applicants rejected.	Total number of applicants.	Applicants accepted at stations and subsequently rejected at depots and depot posts.
Aberdeen, S. Dak.....	1,303	708	2,006	82
Albany, N. Y.....	1,030	2,168	3,198	77
Atlanta, Ga.....	4,426	1,898	6,324	447
Baltimore, Md.....	1,575	1,643	3,218	141
Birmingham, Ala.....	1,784	1,398	3,182	308
Boston, Mass.....	3,771	2,964	6,735	345
Buffalo, N. Y.....	2,117	5,264	7,381	158
Chicago, Ill.....	15,968	10,593	26,561	1,650
Cincinnati, Ohio.....	2,186	1,878	4,064	171
Cleveland, Ohio.....	3,799	1,672	5,471	322
Columbus, Ohio.....	945	1,518	2,463	64
Dallas, Tex.....	2,564	3,464	6,028	207
Davenport, Iowa.....	2,048	2,473	4,521	174
Denver, Colo.....	2,528	5,528	8,056	134
Detroit, Mich.....	4,695	4,275	8,970	416
Duluth, Minn.....	839	821	1,660	51
El Paso, Tex.....	1,092	210	1,302	86
Evansville, Ind.....	1,487	1,019	2,506	162
Fort Wayne, Ind.....	4,984	2,614	7,598	575
Grand Rapids, Mich.....	1,833	1,275	3,108	149
Greensboro, N. C.....	2,003	4,001	6,004	293
Harrisburg, Pa.....	5,405	2,272	7,677	710
Houston, Tex.....	2,374	622	2,996	289
Huntington, W. Va.....	1,932	1,877	3,809	177
Indianapolis, Ind.....	3,948	4,056	8,004	346
Jackson, Miss.....	981	772	1,753	113
Jacksonville, Fla.....	1,316	876	2,192	65
Joplin, Mo.....	1,719	2,392	4,111	142
Kansas City, Mo.....	2,861	1,676	4,537	246
Knoxville, Tenn.....	1,076	2,385	3,461	92
Lexington, Ky.....	1,709	1,182	2,891	239
Little Rock, Ark.....	1,390	2,296	3,686	128
Los Angeles, Cal.....	1,382	1,172	2,554	47
Louisville, Ky.....	1,655	1,808	3,463	149
Memphis, Tenn.....	978	979	1,957	114
Minneapolis, Minn.....	2,933	3,686	6,619	233
Nashville, Tenn.....	663	773	1,438	106
Newark, N. J.....	4,501	3,454	7,955	618
New Haven, Conn.....	1,668	1,598	3,266	169
New Orleans, La.....	1,847	1,852	3,699	141
New York, N. Y.....	13,985	18,542	32,527	1,691
Oklahoma, Okla.....	2,419	4,012	6,431	101
Omaha, Nebr.....	6,038	4,235	10,273	299
Peoria, Ill.....	2,244	958	3,202	239
Philadelphia, Pa.....	4,743	3,892	8,635	531
Pittsburgh, Pa.....	3,546	4,971	8,517	308
Portland, Me.....	1,399	1,105	2,504	185
Portland, Oreg.....	3,743	4,992	8,735	252
Poughkeepsie, N. Y.....	1,644	1,372	3,016	163
Providence, R. I.....	1,762	2,182	3,944	211
Richmond, Va.....	798	933	1,731	128
Roanoke, Va.....	687	779	1,466	65
St. Louis, Mo.....	4,976	7,051	12,027	607
Salt Lake City, Utah.....	2,558	2,383	4,941	234
San Francisco, Cal.....	7,403	19,780	27,183	702
Savannah, Ga.....	1,526	2,218	3,744	145
Scranton, Pa.....	3,957	2,076	6,033	404
Seattle, Wash.....	700	723	1,423	45
Spokane, Wash.....	2,258	1,021	3,279	211
Springfield, Mass.....	1,923	2,292	4,215	152
Syracuse, N. Y.....	1,991	2,362	4,353	181
Terre Haute, Ind.....	1,923	1,923	3,846	176
Toledo, Ohio.....	1,620	1,933	3,553	114
Wichita, Kans.....	3,033	2,546	5,579	103
Total.....	180,191	187,388	367,579	17,526

Analysis of the preceding table shows that 49 per cent of those who applied for enlistment at the recruiting station were accepted and that 9 per cent of the accepted applicants were afterwards rejected upon examination at depots. For the preceding fiscal year the corresponding percentages were 23 and 13, respectively.

The number of enlistments for the Regular Army and the number of applicants rejected at the recruit depots and other military posts and in the field within the fiscal year 1917 are shown in the following table:

Station or post.	Number enlisted.	Number rejected.	Total number examined.
General recruiting stations.....	631	.....	631
Recruit depots:			
Columbus Barracks, Ohio.....	26,834	3,385	30,219
Jefferson Barracks, Mo.....	36,165	4,241	40,406
Fort Logan, Colo.....	12,556	704	13,260
Fort McDowell, Cal.....	7,388	748	8,136
Fort Slocum, N. Y.....	34,790	5,002	39,792
Fort Thomas, Ky.....	9,080	891	9,971
Total.....	126,813	14,971	141,784
Depot posts:			
Fort Bliss, Tex.....	1,142	120	1,262
Fort Douglas, Utah.....	2,083	192	2,275
Fort Ethan Allen, Vt. ¹	1,698	136	1,834
Fort George Wright, Wash. ¹	1,834	204	2,038
Fort Huachuca, Ariz. ¹	224	19	243
Jackson Barracks, La. ¹	2,395	252	2,647
Fort Lawton, Wash. ¹	652	50	702
Fort McPherson, Ga. ¹	2,004	254	2,258
Fort Oglethorpe, Ga. ¹	1,950	286	2,236
Fort Sam Houston, Tex.....	4,458	733	5,191
Fort Screven, Ga. ¹	2,063	139	2,202
United States Disciplinary Barracks, Fort Leavenworth, Kans. ¹	33	1	34
Vancouver Barracks, Wash. ¹	3,210	235	3,445
Total.....	23,746	2,621	26,367
Military camps:			
Fort Benjamin Harrison, Ind.....	34	2	36
Gettysburg, Pa.....	395	43	438
Robinson, Wis.....	27	.....	27
Syracuse, N. Y.....	1,195	100	1,295
Total.....	1,651	145	1,796
Military posts (other than depot posts).....	2,618	86	2,704
In the field.....	2,294	106	2,400
Porto Rico Regiment of Infantry.....	1,427	269	1,696
Aggregate.....	159,180	18,198	177,378

¹ Not operated as depot posts during entire year.

The table last preceding does not include 904 enlistments and 473 rejections for the Philippine Scouts. Including those, the aggregate number of enlistments for the entire Regular Army within the fiscal year was 160,084, and the total number of rejections was 206,059, of which 187,388 were rejected at the recruiting stations; 18,198 at recruiting depots, camps, military posts, and in the field; and 473 for the Philippine Scouts. The aggregate of enlistments and rejections for the entire Regular Army within the fiscal year was therefore 366,143.

Of the rejected applicants 14,229 were rejected because of minority, 4,798 because they were aliens, and 4,707 because of illiteracy. Of the accepted applicants 5,029 declined to enlist at depots or eloped en route thereto.

The following table shows the race and nativity of those enlisted and reenlisted in the Army within the fiscal year 1917:

Race and nativity.	Regular Army.					Philip- pine Scouts.	Aggre- gate.
	Line of Army.	Staff depart- ments, not including Medical De- partment and Quartermas- ter Corps.	Medical Depart- ment.	Quartermas- ter Corps.	Total.		
Native white:							
Enlistments.....	107,629	9,076	10,584	3,348	130,637		130,637
Reenlistments.....	2,099	214	136	251	2,700		2,700
Total.....	109,728	9,290	10,720	3,599	133,337		133,337
Foreign white:							
Enlistments.....	19,353	385	863	223	20,824		20,824
Reenlistments.....	412	43	26	48	529		529
Total.....	19,765	428	889	271	21,353		21,353
Colored:							
Enlistments.....	2,608		5	4	2,617		2,617
Reenlistments.....	401	5	14	23	443		443
Total.....	3,009	5	19	27	3,050		3,050
Indians:							
Enlistments.....							
Reenlistments.....	3				3		3
Total.....	3				3		3
Porto Ricans:							
Enlistments.....	1,377				1,377		1,377
Reenlistments.....	50				50		50
Total.....	1,427				1,427		1,427
Filipinos:							
Enlistments.....						795	795
Reenlistments.....						109	109
Total.....						904	904
Total enlistments.....	130,967	9,461	11,452	3,575	155,455	795	156,250
Total reenlistments....	2,965	262	176	322	3,725	109	3,834
Aggregate.....	133,932	9,723	11,628	3,897	159,180	904	160,084

Upon analysis of the table last preceding it will be observed that practically 86 per cent of the original enlistments of white soldiers were enlistments of natives of the United States. Within each of the three years last preceding the corresponding percentages were 84, 87, and 90, respectively.

The decrease observable in the original enlistment of native white soldiers within the period covered by this report is no doubt attributable to the fact that in time of war the enlistments are not restricted to citizens of the United States or those who have made legal declaration of their intention to become citizens as is the case in time of peace. In time of war the enlistments of aliens otherwise duly qualified is authorized, with the exception of subjects of a country at war with the United States or the citizens or subjects of the allies of such country. Within the latter part of the fiscal year 1917 many enlistments were made of persons who were not citizens of the United States or who had not made legal declaration of their intention to

become citizens. This necessarily reduced the percentage of native white soldiers.

The following table shows the number of enlistments and reenlistments monthly in the line of the Army within the three years ended June 30, 1917:

Months.	Fiscal year ended—								
	June 30, 1917.			June 30, 1916.			June 30, 1915.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
July.....	4,108	37	4,145	1,325	820	2,145	2,211	1,318	3,529
August.....	2,840	18	2,858	1,547	744	2,291	2,664	1,439	4,103
September.....	2,256	15	2,271	1,582	688	2,270	2,737	1,348	4,085
October.....	2,412	19	2,431	1,423	688	2,111	3,202	1,353	4,555
November.....	2,747	369	3,116	1,460	390	1,850	3,329	1,249	4,578
December.....	3,624	314	3,938	1,441	213	1,654	3,316	1,508	4,824
January.....	3,744	315	4,059	1,488	125	1,613	3,542	1,535	5,077
February.....	4,185	503	4,688	1,104	227	1,331	2,761	1,074	3,835
March.....	5,980	394	6,374	1,961	110	2,071	2,761	1,035	3,797
April.....	28,674	353	29,027	2,483	246	2,729	1,540	797	2,337
May.....	39,153	436	39,589	2,058	109	2,167	1,463	705	2,168
June.....	31,244	192	31,436	3,130	88	3,218	1,461	724	2,185
Total.....	130,967	2,965	133,932	21,002	4,488	25,490	30,342	14,085	44,427

The average total monthly enlistments, including reenlistments, derived from the foregoing table are as follows:

For the fiscal year 1915.....	3,702
For the fiscal year 1916.....	2,121
For the fiscal year 1917.....	11,161

The increase to be observed in the number of enlistments, particularly in the latter part of the fiscal year, was no doubt in part due to the conditions caused by the impending hostilities and by the declaration of the actual existence of such hostilities near the close of the fiscal year. This increase in enlistments, however, was not confined to the close of the fiscal year, but existed largely throughout the year, due, no doubt, to the increased number detailed on recruiting duty and the intensive system of recruiting adopted. The number of reenlistments was restricted by the fact that soldiers who enlisted after November 1, 1912, were precluded from reenlisting until four years from the date of enlistment and by the additional fact that legislation enacted within the fiscal year—the act approved May 18, 1917, the selective service law—prescribed that all enlistments which were in force on the date of the approval of that act, and which would terminate during the emergency, should continue in force during the emergency.

The number of enlistments and reenlistments by branches of the service within the three fiscal years last past is shown in the following table:

Branch of service.	Fiscal year ended—								
	June 30, 1917.			June 30, 1916.			June 30, 1915.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
Staff departments.....	24,488	760	25,248	729	575	1,304	798	2,163	2,961
Engineers.....	8,076	71	8,147	314	73	387	571	294	865
Cavalry.....	25,314	527	25,841	6,892	807	7,699	7,305	2,320	9,625
Field Artillery.....	17,981	132	18,113	1,234	264	1,498	1,649	500	2,239
Coast Artillery.....	20,011	677	20,688	5,751	1,246	6,997	7,365	3,978	11,343
Infantry.....	58,196	1,446	59,642	6,802	2,012	8,814	13,433	6,750	20,183
Miscellaneous.....	12	62	74	9	46	55	19	153	172
Total.....	154,078	3,675	157,753	21,731	5,023	26,754	31,140	16,248	47,388

The increase and decrease relatively in the number of enlistments and reenlistments in the different branches of the service is more apparent when the numbers in the last preceding table are reduced to percentages of the total number of enlistments and reenlistments for each year compared. For that reason those percentages are shown in the table which follows:

Branch of service.	Percentages of total number of enlistments and reenlistments during the fiscal year ended—								
	June 30, 1917.			June 30, 1916.			June 30, 1915.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
Staff departments.....	15.52	0.48	16.00	2.72	2.15	4.87	1.68	4.57	6.25
Engineers.....	5.12	.05	5.17	1.17	.27	1.44	1.20	.62	1.82
Cavalry.....	16.05	.33	16.38	25.76	3.01	28.77	15.41	4.90	20.31
Field Artillery.....	11.40	.08	11.48	4.60	1.00	5.60	3.48	1.25	4.73
Coast Artillery.....	12.68	.43	13.11	21.50	4.66	26.16	15.54	8.40	23.94
Infantry.....	38.89	.92	37.81	25.43	7.52	32.95	28.35	14.24	42.59
Miscellaneous.....	.01	.04	.05	.04	.17	.21	.04	.32	.36
Total.....	97.67	2.33	100.00	81.22	18.78	100.00	65.70	34.30	100.00

As previously pointed out, reenlistments were greatly restricted throughout the year by existing law, and in the latter portion of the year were entirely prohibited. In view of this the tabular comparison made in previous reports of the number of reenlistments in the several branches of the service with the authorized strength of those branches would serve no useful purpose for the period embraced in this report and is, therefore, omitted.

For the purpose of keeping fully informed as to the comparative efficiency and usefulness of each of the several methods of advertising for recruits, the practice has been continued of requiring recruiting officers at stations to report whether the applications for enlistments made to them were, or were not, the result wholly or in part of any form of advertising, and, if so, of what form. The number of applications reported to have been the result of each of the several

methods of advertising during the fiscal year ended June 30, 1917, is as follows:

Methods of advertising.	Number of applications.
Newspaper advertisement.....	19,057
Recruiting posters.....	30,300
Recruiting circulars.....	21,195
Recruiting flag and station.....	122,498
In parks and squares.....	45,149
Canvases by recruiting parties.....	48,438
News items in newspapers.....	2,151
Special circulars issued by recruiting officers.....	7,048
Advertising cards.....	2,216
Personal letters from recruiting officers.....	352
Hand bills.....	13,215
Postal rate cards.....	42
Electric signs (2 districts).....	644
Recruiting booklet, "The United States Army as a Career".....	9,823
Slides in moving picture houses (3 districts).....	916
Signs on elevated stations (1 district).....	1,420
Booklet "Experience of a Recruit in United States Army".....	1,018
Tent display (1 district).....	2
Postmasters.....	12,561
Metal signs.....	810
Motor advertising (1 district).....	54
Vandeville act.....	8
Total.....	348,007
Not the result of advertising.....	15,136
Total number of applicants reported upon.....	363,143

¹ This number is 4,436 less than the whole number of accepted and rejected applicants shown by tri-monthly reports of recruiting (p. 35), apparently no reports having been received in that number of cases.

As in previous years, the sight of the recruiting flag and station proved within the fiscal year covered by this report the most prolific method of advertising for recruits. Within the preceding fiscal year the park and square parties and the recruiting posters were second and third, respectively, but within the fiscal year covered by this report, due, no doubt, to the intensive system of recruiting adopted, canvass by recruiting parties surpassed the park and square parties and recruiting posters and stands second in effectiveness, the park and square parties and the recruiting posters being third and fourth, respectively.

Another method of advertising, adopted late in the fiscal year 1916, under the authority of the act of Congress approved June 3, 1916, section 37 of which authorized the President in his discretion to utilize the services of postmasters of the second, third, and fourth classes in procuring the enlistment of recruits for the Army, has been continued during the year covered by this report. In utilizing this authority, the postmasters have been of material assistance in advertising the recruit service, more than 12,000 applicants having been secured by this means.

Another new means of advertising, adopted within the past fiscal year, consists of a perpetual calendar, the daily date sheets of which contain advertisements setting forth the advantages of Army life. This calendar, which combines the good qualities of the Army poster and the poster and handbill advertising, has proven very popular and has been in great demand. While it has not been in use sufficiently to determine the results achieved by it, the fact that it is being displayed in post offices, banks, and other places of public assembly is an indication that adequate and satisfactory results will be ob-

tained. The booklets, "Experience of a Recruit," "Guide to Civil Employment for Ex-Soldiers," and "The United States Army as a Career," described in previous reports, have been continued in use throughout the past fiscal year with satisfactory results.

At the date of the preparation of this report no information is available from which a definite statement can be prepared showing the expenses of the recruiting service for the fiscal year covered, but consistent effort has been maintained to limit the expense to the absolutely necessary cost incident to the intensive system of recruiting adopted and rendered necessary by the largely increased strength of the Army. In considering the cost of the recruiting service, it is deemed well to call attention to the fact that, in addition to recruiting for the Regular Army, the general recruiting service has been called upon to assist the department commanders in securing recruits for the Enlisted Reserve Corps and the National Guard in the Federal service. This additional work assumed by the general recruiting service should be considered in determining the per capita cost in securing recruits for the Army. While, as previously stated, figures are not available from which this per capita cost can be determined, it is believed that the large number of recruits for the Regular Army, Enlisted Reserve Corps, and the National Guard in the Federal service secured within the fiscal year will reduce the per capita cost of recruits, even though the aggregate cost of the service may be increased by the expansion of the recruiting service.

REGULAR ARMY RESERVE.

On June 30, 1916, the number of enlisted men in the Regular Army Reserve was 4,648. Between July 1, 1916, and June 30, 1917, the number of men furloughed to the Reserve was 4,237, making the total furloughed to the Reserve 8,885. Of those, 352 were discharged under the provisions of section 29, national defense act, approved June 3, 1916; 107 were discharged on surgeon's certificate of disability; 43 were discharged for the convenience of the Government; 8 were discharged on account of having been sentenced to imprisonment by a civil court; and 20 died of disease, leaving 8,355 reservists on June 30, 1917.

In response to the mobilization call of June 28, 1916, approximately 3,000 enlisted men rejoined the colors and were assigned to Regular Army units serving on the Mexican border.

On May 17, 1916, owing to the exigencies of the service, all furloughs to the Regular Army Reserve, with the exception of members of the Coast Artillery Corps, were suspended.

On April 19, 1917, all furloughs to the Regular Army Reserve were suspended and the several department commanders were directed to mobilize the Reserve on or after May 1, 1917, for active service.

All of the class B reservists were mobilized for active service on June 28, 1916, and were assigned to active duty on the Mexican border, and there have been no enlistments in that class since that date.

ENLISTED RESERVE CORPS.

As set forth in the preceding annual report of this office, the Enlisted Reserve Corps is organized in accordance with the provisions of section 55 of the national defense act approved June 3, 1916. That act provides that the corps shall be composed of five sections—Engineer Corps, Signal Corps, Quartermaster Corps, Ordnance Department, and Medical Department—and authorizes the President to prescribe the number and grades in each section. Under normal conditions the term of enlistment in this corps is four years, but during the present emergency enlistments were authorized with a provision that discharges would be granted at the termination of the existing emergency, in order to conform to the enlistment period provided for the Regular Army during the emergency.

The purpose of the legislation was to establish a reserve of specially qualified men for service in the five branches before named. In time of peace the men were to undergo a short period of military training each year without seriously interfering with their civil pursuits. While the contemplated special training was precluded by the declaration of war, the purpose of the legislation was amply served in that a large number of specially trained men were available when most needed. The nine volunteer Engineer regiments organized for railway work abroad were composed of men obtained through the Enlisted Reserve Corps. The men composing the 27 field battalions, 12 telegraph battalions, and 6 depot companies organized as part of the Signal Corps were also secured from the Enlisted Reserve Corps, as were the 235 wagon companies, 106 auto-truck companies, 20 bakery companies, and 24 pack-train companies, with a strength of approximately 16,000, organized as a part of the Quartermaster Corps. A large number of base hospital units and ambulance sections, with a strength of nearly 15,000 men, was formed with the men secured from the Reserve Corps. No units of the Ordnance Department were composed of members of this corps.

The strength of the Enlisted Reserve Corps on June 30, 1917, was approximately 35,000, while on October 1, 1917, it was approximately 55,000.

CAMPS OF INSTRUCTION, COAST DEFENSE EXERCISES, AND CITIZENS' TRAINING CAMPS.

Neither the camps of instruction, the joint coast defense exercises, nor the citizens' training camps were held during the fiscal year ended June 30, 1917, the energy of the military authorities being directed toward the mobilizing and training of the forces this country is going to use against the enemy.

SMALL-ARMS FIRING.

Because of the fact that the regular target-practice season varies in the several departments, and in some instances extends to the close of the calendar year, it is impracticable to make a statement showing the results of the practice for the year 1917 in this report.

The number of qualifications in the several organizations of the line of the Army in the grades of expert riflemen, sharpshooters, and marksmen since 1910 is shown in the following table:

Grades.	Years.						
	1910	1911	1912	1913	1914	1915	1916
Expert riflemen	2,151	1,211	1,312	1,627	2,180	3,539	4,000
Sharpshooters	8,857	7,326	9,323	11,144	8,236	7,586	8,109
Marksmen	5,741	5,196	6,307	7,121	12,423	20,995	19,358

Under paragraph 1345, Army Regulations, "an enlisted man who qualifies hereafter as an expert rifleman is entitled to \$5 a month, as a sharpshooter to \$3 a month, and as a marksman to \$2 a month, in addition to his pay, from the date of qualification until the next opportunity to requalify, or for one year if no opportunity for requalification is presented within that year, provided that during that time he does not attain a higher qualification and that he continues to be a member of an organization armed with the rifle, in which qualification is authorized, or reenlists in such organization within three months from date of discharge therefrom."

The grade of expert revolver shot was established in revolver practice by the Provisional Small-Arms Firing Manual, 1909, and reports of results of revolver firing in the several organizations of the line of the Army during the target years 1910, 1911, 1912, 1913, 1914, 1915, and 1916 show, respectively, 810, 1,050, 1,335, 1,412, 981, 1,476, and 1,384 qualifications in that grade. A silver badge is provided for each original qualification.

Paragraph 282, Small-Arms Firing Manual, 1913, provides that departmental rifle and pistol competitions shall be held in every alternate year. Owing, however, to the exigencies of the service incident to the present emergency, these competitions will not be held during the year 1917. For the same reason, the National Matches will not be held in 1917.

The National Matches for the year 1916, comprising the national individual match, the national pistol match, the national team match, and the united service match, were held at Jacksonville, Fla., October 20-25, under the supervision of Col. Samuel W. Miller, Infantry, executive officer, and Maj. William C. Harlee, United States Marine Corps, as assistant executive officer and chief range officer. Fifty-five teams participated in the National Matches, a greater number than in any previous matches, there being 1 team from the United States Marine Corps, 24 National Guard teams in the service of the United States, 3 National Guard teams not in the service of the United States, and 27 civilian teams. There were no teams entered from the Army or the Navy.

Four trophies were offered for the national team match instead of the customary three, one for the high team of the regular United States services, another to the high team among the National Guard units, a third for the high civilian team, and a fourth for the high team among the military colleges, only one trophy to be awarded in any one of the four groups mentioned.

Medals were awarded to the members of teams according to their classification at the close of the matches, the first 16 teams comprising

class A, the second 16 teams comprising class B, and the remainder class C. To the members of class A teams, the medals awarded were replicas of the National trophy; to class B teams, replicas of the Hilton trophy; and to class C teams, replicas of the Soldier of Marathon.

The winning teams, the scores, and the prizes awarded were as follows:

Teams.	Score.	Prizes.
CLASS A.		
United States Marine Corps.....	3,047	The National trophy.
New York National Guard.....	3,037	The Hilton trophy.
California civilian team.....	2,964	The Soldier of Marathon.
CLASS B.		
Military College of South Carolina.....	2,839	The new trophy (not named).

The first prize in the national individual match, a gold medal and \$80, was won by W. K. Spencer, of the Missouri civilian team, with a score of 274; and the first prize in the national pistol match, a gold medal and \$55, was won by George E. Cook, of the District of Columbia civilian team.

The united service match was won by the United States Marine Corps team, to which team was awarded the united service trophy.

THE RETURN OF THE PUNITIVE EXPEDITION INTO MEXICO TO THE UNITED STATES.

On January 18, 1917, the commanding general, Southern Department, was directed to inform Gen. Pershing that it was the intention of the Government to withdraw from Mexico at an early date the punitive expedition which had been sent into Mexico in pursuit of Villa on March 15, 1916, as set forth in the annual report of this office for 1916. Gen. Pershing recommended that the date of the beginning of the movement from Dublan, Mexico, be not later than January 28, 1917, the withdrawal to be entirely by marching, and the command to assemble at Palomas, Chihuahua, and march across the border together.

This recommendation was approved, and on January 28, 1917, Gen. Pershing reported that the withdrawal of his troops would be conducted by brigades in four separate columns on account of the scarcity of water, the last column to be a provisional cavalry brigade, which would leave Dublan on January 31, and all detachments to reach Palomas, Chihuahua, on February 4, and march into Columbus, N. Mex., on February 5, 1917.

On February 4, 1917, all troops of the expedition arrived at Palomas, and on February 5, 1917, the expeditionary forces crossed the line, the last troops leaving Mexico at 3 p. m.

STRENGTH AND LOSSES OF THE NATIONAL GUARD IN FEDERAL SERVICE.

On June 30, 1916, the strength of the National Guard in Federal service was 3,511 officers and 80,610 enlisted men, and on June 30,

1917, the strength was 3,803 officers and 107,320 enlisted men. The figures showing the strength at the close of the fiscal year 1917 do not represent the total strength of the National Guard organizations in service during the year, as some of the organizations in service on June 30, 1916, were mustered out prior to June 30, 1917, and some organizations in service on June 30, 1917, were not in service at the beginning of the year.

No data are now available showing the number of officers separated from the service during the year, but the number of losses in the enlisted personnel of the National Guard in Federal service during the year is as follows:

Discharged upon expiration of term of service-----	2,821
Discharged on account of disability-----	7,157
Discharged by order-----	8,735
Discharged pursuant to sentence of a general court-martial-----	222
Died of disease-----	168
Died as result of accident-----	79
Drowned-----	27
Suicide-----	4
Homicide-----	2
Deserted-----	1,806
Total-----	21,021

The number of enlisted men mustered out during the year is not shown in the foregoing table, as practically all of those mustered out with their organizations at any time during the year were again inducted into the service before the close of the year.

Attention is invited to the small number of desertions from the National Guard organizations in the Federal service during the year as compared with the Regular Army. The percentage of desertions from the National Guard was less than 1, while the percentage of desertions from the Regular Army was 1.86.

WITHDRAWAL OF THE NATIONAL GUARD FROM THE BORDER AND MUSTER OUT OF SERVICE.

As stated in the last annual report of this office, there were on duty in the Southern Department on July 31, 1916, 5,058 officers and 102,077 enlisted men of the National Guard, who were inducted into the service of the United States under the calls of the President of May 9 and June 18, 1916, which were issued in view of the possibility of further aggression on the territory of the United States and the necessity for the proper protection of the Mexican border.

Owing to improvement in conditions on the border, and to the fact that the department had determined on the withdrawal of the punitive expedition from Mexico, which would make Regular troops available for border duty, the commanding general, Southern Department, was directed on January 17, 1917, to designate 25,000 National Guard troops to be sent to their homes for muster out of the Federal service, and on February 2, 1917, the department commander reported that the movement of these troops to their homes was then beginning and would be completed by February 20, 1917. On February 16, 1917, the department commander was directed to send all remaining National Guard organizations home for muster out, including those of border States.

CALL INTO THE FEDERAL SERVICE AND DRAFT OF THE NATIONAL GUARD.

Having in view the necessity for affording better protection against possible interference with postal, commercial, and military channels and instrumentalities of the United States, and being unable with the Regular troops available at his command to insure the faithful execution of the laws of the United States in this regard, the President, between March 25 and April 12, 1917, called into the service of the United States, or directed the retention in that service, of a large part of the National Guard. These calls were issued through the governors of the States concerned and the commanding general of the District of Columbia National Guard, who were advised that the troops would be assembled at places to be designated by department commanders.

On June 20, 1917, additional Engineer organizations of the National Guard were called into the Federal service for duty at National Army cantonments, for the purpose of giving constructing quartermasters such engineering assistance as might be desired, and on June 22 additional Field Artillery organizations of the National Guard were called into the Federal service for duty at officers' training camps for the purpose of providing for the proper training of student officers in Field Artillery.

Under the proclamation of the President, dated July 3, 1917, entitled a "Call into Federal service and draft of the National Guard," the remainder of the National Guard of the several States and the District of Columbia was called into the service of the United States in three parts as of and from the dates of July 15, July 25, and August 5, 1917, respectively. The tentative authorized strength of the National Guard called into the Federal service is 13,377 officers and 456,800 enlisted men.

By the same proclamation, and under the authority conferred upon the President by the second clause of section 1 of the act of Congress "To authorize the President to increase temporarily the Military Establishment of the United States," approved May 18, 1917, the President drafted into the military service of the United States as of and from the 5th day of August, 1917, all members of the National Guard and all enlisted members of the National Guard Reserve of the several States and the District of Columbia, except members of Staff Corps and departments not included in the personnel of tactical organizations, and except such other officers of the National Guard as had been or might be specially notified by authority of the President that they would not be drafted.

DECLARATION OF WAR AGAINST THE GERMAN EMPIRE.

The Congress of the United States, in the exercise of the constitutional authority vested in it, having resolved by joint resolution of the Senate and the House of Representatives under date of April 6, 1917, "that the state of war between the United States and the Imperial German Government which has been thrust upon the United States is hereby formally declared," the President on the same date issued a proclamation of the event in accordance with the provisions of section 4067 of the Revised Statutes. The proclamation is published in General Orders, No. 45, War Department, 1917.

There were no engagements with the enemy prior to the close of the fiscal year covered by this report.

ARMY FIELD CLERKS AND FIELD CLERKS, QUARTERMASTER CORPS.

The act of Congress approved August 29, 1916, designated the former headquarters clerks as Army field clerks, and made them subject to the rules and articles of war.

The same act created a force of not to exceed 200 clerks to be known as field clerks, Quartermaster Corps, and made them subject to the rules and articles of war.

It has been decided that under the act of August 29, 1916, creating the positions of Army field clerks and field clerks, Quartermaster Corps, occupants of those positions have a military status, and that as they are appointed to office by the Secretary of War, they are officers in the military service, although not commissioned officers.

The authorized number of Army field clerks in the permanent force was fixed at 170, in grades of salary ranging from \$1,000 to \$2,000 per annum. At the time of the change of the headquarters clerks to Army field clerks this force consisted of 142. To bring this number up to the authorized strength of 170, written examinations were held on February 7, 1917, in the several territorial departments. Registers of eligible stenographers and typewriters were created thereby, from which registers those standing highest on the list were appointed as Army field clerks to fill the vacancies in that force.

Due to the increase in the military forces of the United States, it became necessary, in order to expedite the paper work at the headquarters of the various departments, divisions, cantonments, service schools, and ports of embarkation, to secure an additional number of Army field clerks. The urgent deficiency act approved June 15, 1917, authorized a force of 1,000 Army field clerks. These 1,000 clerks, added to the 170 of the permanent force, made an aggregate of 1,170. Of this number about 1,100 have been authorized for the headquarters of the various units mentioned in the preceding paragraph. The establishment of the headquarters of the American Expeditionary Forces abroad has, up to the time of this report, called for an assignment of 252 Army field clerks for duty thereat. As the strength of the Expeditionary Forces is increased, a large increase in the number of clerks now at the headquarters will be required.

In order that a sufficient number of additional field clerks may be secured for new units that may be established, and to increase to the number necessary the force already at the headquarters of the various departments, divisions, cantonments, and ports of embarkation, and at the headquarters of the American Expeditionary Forces, an additional force of 1,750 clerks of the several grades has been authorized by Congress in the urgent deficiency act approved October 6, 1917, making an authorized force of 2,920 Army field clerks for the fiscal year ending June 30, 1918.

CANTONMENTS FOR TROOPS OF NATIONAL ARMY AND NATIONAL GUARD.

On May 7, 1917, the commanding generals of the several military departments in the United States were instructed to proceed at once to select sites for the cantonments for the first troops to be raised

under the selective service law and for the training of 16 Infantry divisions of the National Guard; and to lease, on behalf of the United States, any selected tracts not already owned or leased by the Government. As a result of the recommendations of department commanders sites for cantonments for troops of the National Army and National Guard were selected as follows:

National Army.—Ayer, Mass.; Yaphank, Long Island, N. Y.; Wrightstown, N. J.; Annapolis Junction, Md.; Petersburg, Va.; Columbia, S. C.; Atlanta, Ga.; Chillicothe, Ohio; Louisville, Ky.; Battle Creek, Mich.; Rockford, Ill.; Little Rock, Ark.; Des Moines, Iowa; Fort Riley, Kans.; Fort Sam Houston, Tex.; and American Lake, Wash.

National Guard.—Charlotte, N. C.; Spartanburg, S. C.; Augusta, Ga.; Anniston, Ala.; Greenville, S. C.; Macon, Ga.; Waco, Tex.; Houston, Tex.; Deming, N. Mex.; Fort Sill, Okla.; Fort Worth, Tex.; Montgomery, Ala.; Hattiesburg, Miss.; Alexandria, La.; Linda Vista, Cal.; and Palo Alto, Cal.

Upon approval of these sites construction was immediately begun under the direction of the cantonment division of the Quartermaster General's Office, working in conjunction with the Council of National Defense. These cantonments are now completed and occupied by the National Army.

PERSONAL IDENTIFICATION SYSTEM.

The use of finger prints and personal descriptions as a means of personal identification of enlisted men of the Regular Army and the National Guard in Federal service was continued throughout the year. Owing to the fact that the photographs were not necessary for identification purposes, except as an aid in the apprehension of deserters, they were discontinued as a part of the personal identification record of enlisted men. The descriptive circulars of deserters were discontinued shortly after the outbreak of the war upon recommendation of a board appointed for the purpose of decentralizing the work of the Army and decreasing its paper work.

At the close of the year ending June 30, 1917, 499,401 finger-print records of enlisted men of the Regular Army had been received in this office, 109,745 of those records having been made in cases of reenlistment, in which records made during the previous service of soldiers were on file.

In addition to the finger-print records of soldiers of the Regular Army, 28,716 records of members of the Enlisted Reserve Corps have been received and 209,125 finger-print records of members of the National Guard in the Federal service.

The total number of finger-print records on file in this office at the close of the fiscal year was 737,242.

Heretofore finger-print records of officers were not taken, but to meet conditions that are likely to arise during and after the present war the department has decided to make finger-print records of officers as well as of enlisted men.

During the fiscal year ended June 30, 1917, 426 cases of fraudulent enlistment of former deserters, general prisoners, and others were discovered through the finger-print system. Of these 426 cases, 31 had withdrawn from military control when the identity was estab-

lished. Of the remaining 395 cases, 97 were held in service, 194 dishonorably discharged and confined for various periods by sentences of courts-martial, 78 were discharged under paragraph 148½, Army Regulations, 4 were dropped from the rolls of the Army and delivered to the naval authorities, and in 22 cases no report of final disposition has been received.

INDEX-RECORD CARD WORK.

The index-record card work performed during the fiscal year consisted in the reproduction of 314,289 Confederate individual-service record cards of the Civil War. This work was prosecuted as rapidly as the current work of the office would permit, but since the declaration of war all of the available force has been engaged on current work.

The whole number of index-record cards prepared up to and including June 30, 1917, comprised 52,035,820 military cards and 8,656,096 medical cards, a total of 60,691,916. The foregoing figures do not include the medical cards (approximately 103,000) pertaining to the Regular Army, which are not made in this office but are received in the Surgeon General's Office from the field and transmitted to this office after they become noncurrent.

The total number of index-record cards prepared in this office up to June 30, 1917, includes 8,518,421 Confederate military cards and 741,009 Confederate medical cards. These cards were prepared in the process of compilation, pursuant to law, of the roster of officers and enlisted men of the Union and Confederate Armies, and represent entries on the records and not the number of different individuals.

OFFICIAL RECORDS OF THE UNION AND CONFEDERATE ARMIES.

Two sets of the Official Records of the Union and Confederate Armies, consisting of 256 books and 356 plates, were issued during the fiscal year under the provisions of the act of Congress approved March 3, 1903 (32 Stat. L., 1145), authorizing and directing the Secretary of War to furnish sets of these records to Senators, Representatives, and Delegates of the Fifty-seventh Congress and to permanent libraries and educational institutions designated by those Senators, Representatives, and Delegates.

No volumes of that publication were sold by The Adjutant General's Office during the fiscal year.

ROSTER OF OFFICERS AND ENLISTED MEN OF THE UNION AND CONFEDERATE ARMIES.

The compilation of the Confederate part of the "Complete Roster of Officers and Enlisted Men of the Union and Confederate Armies," authorized and required to be compiled by a provision contained in the act of Congress approved February 25, 1903 (32 Stat. L., 884), was continued during the year as rapidly as the condition of the current business would permit. The legislation under which the compilation is being made does not require or authorize the publica-

tion of the proposed roster, but Congress no doubt intended that the authority for its publication should be given when the work of compilation shall have been completed or shall have been sufficiently advanced to justify the beginning of the publication.

The compilation of the Union part of the roster is comparatively complete, and, as stated in previous annual reports, if the publication is authorized by Congress the preparation of printer's copy for the part relating to Union Volunteer troops can be begun.

The compilation of the Confederate part will not be completed for any one State until the carding of all the Confederate hospital records shall have been completed.

The date of the completion of this carding will depend upon the duration of the present war, as all of the clerical force available for current work is now engaged upon that work.

MEDALS OF HONOR.

During the fiscal year ended June 30, 1917, there were 17 medals of honor issued by the War Department. Nine of these were original awards and eight were issued to replace medals of the old design. The whole number of awards of the congressional medal of honor up to and including June 30, 1917, was 2,631. Medals of honor are issued by the War Department under the provisions of the act of Congress approved April 23, 1904 (33 Stat. L., 274).

CAMPAIGN, CERTIFICATE OF MERIT, AND SERVICE BADGES.

A summary of the campaigns for which the issue of campaign badges has been authorized is published in General Orders, No. 129, War Department, August 13, 1908. The issue of those badges, which are intended "to commemorate services which have been or shall hereafter be rendered in campaign," was authorized by General Orders, No. 4, War Department, January 11, 1905.

During the past fiscal year 322 names were added to the lists of officers and enlisted men who were found to be entitled to campaign badges, making a total of 43,203 officers and enlisted men found to be entitled to those badges. Of these, 31,804 were entitled to the Philippine campaign badge, 7,307 to the Spanish campaign badge, 1,636 to the China campaign badge, 1,873 to the Indian campaign badge, and 450 to the Civil War campaign badge.

Campaign badges are a part of the uniform; they are sold to officers and issued to enlisted men in service by the Quartermaster General of the Army on data furnished by The Adjutant General's Office.

It was decided by the Secretary of War in 1908 that campaign badges may be issued to members of the Organized Militia who are entitled to wear the uniform of the Army and whose service conforms to the requirements of General Orders, No. 129, before cited. Since the date of that decision, May 26, 1908, data have been furnished to the Quartermaster General of the Army in the cases of approximately 2,015 members of the National Guard who made applications for campaign badges.

In addition to the campaign badges before referred to, the issue of a service badge was authorized for service in the Army of Cuban

Pacification by General Orders, No. 96, War Department, May 11, 1909. Data have been furnished to the Quartermaster General of the Army in the cases of 6,259 applications for those badges since the date of the order authorizing their issue.

By authority of the President the issue of an Army of Cuban Occupation badge was provided for in General Orders, No. 40, War Department, June 28, 1915. The badge is for issue to officers and enlisted men who rendered service with the Army of Cuban Occupation between July 18, 1898, and May 20, 1902. Data have been furnished to the Quartermaster General in the cases of 138 applications for these badges during the fiscal year ended June 30, 1917.

The issue of a certificate of merit badge and ribbon as a part of the uniform to each officer and enlisted man in the service having a certificate of merit was authorized in General Orders, No. 4, War Department, January 11, 1905, as amended in General Orders, No. 129, War Department, August 13, 1908. At the close of the last fiscal year 244 certificate of merit badges had been issued.

In order that former officers and soldiers now in civil life might be able to obtain the campaign badges and certificate of merit badges to which they would have been entitled if they were still in service an arrangement was made with the United States mint at Philadelphia by which these badges would be furnished by the mint at a nominal cost, covering expense of manufacture, upon receipt of certificates from The Adjutant General of the Army in verification of the claims. The sale of the Army of Cuban Occupation badge is also authorized in the case of heirs or legal representatives of deceased soldiers.

This arrangement was completed in December, 1913, and since that date 22,933 applications for campaign badges and the Army of Cuban Pacification and Army of Cuban Occupation badges have been received in this office. In 19,534 of these cases, the service was verified and certificates were issued accordingly, and in 3,399 cases the applications were denied. The campaigns and service for which these certificates were issued are as follows: Civil War, 5,782; Spanish War, 4,807; Philippine Insurrection, 5,681; Indian wars, 888; China campaign, 361; Army of Cuban Pacification, 275; Army of Cuban Occupation, 1,740. In addition to these, certificates for purchase of certificate of merit badges were issued in four cases.

PHILIPPINE SERVICE MEDAL.

The Philippine service medal, authorized by the act of Congress approved June 29, 1906 (34 Stat. L., 621), is issued "to each of the several officers and enlisted men and families of such as may be dead, who, having volunteered and enlisted under the calls of the President for the War with Spain, served beyond the terms of their enlistment to help to suppress the Philippine Insurrection, and who subsequently received an honorable discharge from the Army of the United States, or who died prior to such discharge."

The medals are issued by the Quartermaster General of the Army on data furnished by The Adjutant General.

Up to and including June 30, 1916, statements as to whether or not service upon which the application was based was such as to authorize the issue of that medal had been made by The Adjutant Gen-

eral's Office in 7,572 cases. During the past fiscal year similar statements were made in 51 cases, making a total of 7,623 applications for Philippine service medals received since the enactment of the legislation before cited. In 6,571 of these cases the service was found to be such as to come within the provisions of the law, and in the remaining 1,052 cases the service was found to be such as to preclude the issue of the medal.

CURRENT WORK OF THE ADJUTANT GENERAL'S OFFICE.

There was a material increase in the volume of current work of the office during the last fiscal year, the increase being in work inaugurated in the office as well as in the number of pieces of mail received. The increase in the volume of work was not distributed over the entire year, as most of it came in the last quarter, or after the declaration of war against Germany.

During the fiscal year covered by this report 516,343 cases were received, a daily average of 1,721, as compared with 471,655 cases, or a daily average of 1,546, received during the fiscal year 1916.

In addition to the number of cases received, more than 1,000,000 returns, muster rolls, enlistment papers, identification records, periodical reports, or other records were received during the fiscal year 1916, the daily average number of such pieces of mail received being in excess of 3,300. During the preceding fiscal year approximately 451,500 such pieces were received, a daily average of 1,480.

While the number of pieces of mail received generally is a fair indication of the amount of work performed, such was not the case during the fiscal year 1917. The work initiated in the office increased in greater proportion than the number of pieces of mail. For instance, during the period from July 1, 1916, to October 1, 1917, approximately 100,000 officers have been appointed or commissioned in the Regular Army, the Officers' Reserve Corps, or the National Guard, while during the preceding like period less than 2,000 commissions or appointments were made. If, as in preceding years, a case received contained the names of two or three officers to be commissioned or assigned, the number of cases received would have been indicative of the increase in work; but now in order to reduce paper work one case often contains the names of 100 or more officers to be commissioned and assigned. The work of keeping the records of the officers increased in even greater proportion than the increase in the number of officers, because the war necessitated frequent changes in the status and assignment of the commissioned personnel, and an initial record was made for each new officer.

The distribution to the Army, as prescribed in paragraph 803, Army Regulations, of general and special orders, bulletins, and changes was continued throughout the year. The following table shows the number of copies of orders, bulletins, and changes distributed during the fiscal year ended June 30, 1917:

General orders	1,700,000
Bulletins	1,672,000
Special orders, full copies	120,000
Special orders, extracts	116,000
Special orders, bulletined	108,000
Recruiting, enlistment, and miscellaneous circulars	70,000
Changes, Army Regulations, manuals, etc.	850,000

During the fiscal year 23,971,160 blank forms and 1,000,857 books, manuals, etc., were distributed to the Army by this office, either directly or to the proper officers of the military division and departments for distribution by them, or were sold to the Organized Militia of the several States and the District of Columbia.

That the figures for the entire fiscal year do not indicate the increase in the work since the declaration of war is patent when the following figures are considered. The average number of pieces of mail received daily between April 6, 1917, and June 30, 1917, was approximately 40,000, and the number of pieces now received daily is approximately 80,000.

CIVILIAN EMPLOYEES OF THE ADJUTANT GENERAL'S OFFICE.

The number of employees (483 clerical and 98 subclerical) authorized for The Adjutant General's Office for the fiscal year ended June 30, 1917, by the act of Congress approved May 10, 1916 (the same number as was authorized for the preceding fiscal year), was increased, by the act approved September 8, 1916, by 100 clerks and 7 subclerical employees. This addition to the office force, as set forth in my last annual report, was necessary to enable the office to handle the large amount of additional work falling to its share as a result of the reorganization and increase in the permanent military establishment as provided for by the national defense act, approved June 3, 1916, and the new duties devolving upon the office as the result of certain provisions of that act.

By June 30, 1917, 278 clerical and 17 subclerical employees had been added to the personnel of the office under the provisions of the act approved June 15, 1917, which authorizes "the temporary employment of such additional force of clerks and other employees as in the judgment of the Secretary of War may be proper and necessary to the prompt, efficient, and accurate dispatch of official business in the War Department and its bureaus, to be allotted by the Secretary of War to such bureaus and offices as the exigencies of the existing situation may demand."

During the fiscal year covered by the report, 65 employees (including 4 who accepted provisional commissions in the Regular Army and 4 who, after attending training camp, became members of the Officers' Reserve Corps) resigned their positions in this office, 6 were transferred therefrom, 3 were discharged, 4 were dropped without prejudice to become members of the Officers' Reserve Corps, and 19 died. This makes a total of 97, and is over 10 per cent of the civilian force of the office as constituted June 30, 1917. The average age of those who became separated otherwise than by death was over 34 years, while their average length of service was about 5 years; of those who died, the average age was about 59 years and their average length of service 20 years. Classified by salaries, the separations herein referred to were as follows: One at \$2,000, 1 at \$1,800, 4 at \$1,600, 13 at \$1,400, 39 at \$1,200, 26 at \$1,000, 2 at \$840, 7 at \$720, and 4 at \$660.

Judged by the increase in the volume of work the force of this office seems wholly adequate to prevent the current work from falling hopelessly in arrears. The number of pieces of mail now being re-

ceived is approximately twenty-five times as great as during the preceding year, but the force has not even been doubled, and the major portion of it is composed of clerks unfamiliar with Army matters. Notwithstanding these handicaps, the work has not fallen in arrears, a testimonial to the zeal, unflagging energy, and ability of the officers and employees on duty in the office. It has been found necessary to abandon many old methods, effective and desirable in time of peace, but too cumbersome to meet our present needs.

Before closing this report I desire to express my appreciation to the officers and civilian employees of the office for the efficient and faithful performance of the difficult and exacting duties devolving upon them as the result of the reorganization of the permanent military establishment, the Mexican border troubles, and the present grave emergency. They have worked earnestly, loyally, and willingly, disregarding the personal inconvenience and physical discomfort caused by long and irregular hours of duty, to prevent the office from failing in any part of its duty. Their work was not spectacular but it was effective, as serious delays here would have prevented the prompt and effective organization of the military forces. That the officers and civilian employees have kept the work current is an achievement of which I am proud, and I desire to express to each officer and employee my sincere thanks for what he or she has achieved.

H. P. McCain,
The Adjutant General.

The SECRETARY OF WAR.

REPORT OF THE INSPECTOR GENERAL.

REPORT OF THE INSPECTOR GENERAL.

WAR DEPARTMENT,
OFFICE OF THE INSPECTOR GENERAL,
Washington, June 30, 1917.

SIR: The following report pertaining to the operations of the Inspector General's Department during the fiscal year ending June 30, 1917, is submitted:

PERSONNEL OF THE DEPARTMENT.

The Inspector General is the only officer with permanent commission in the corps.

The following detailed officers are this date on duty in the department: Ten colonels, 14 lieutenant colonels, and 14 majors.

The disproportionate number of colonels is due to the fact that several officers have been promoted and under provisions of the act of June 3, 1916, have remained on duty in the department.

These officers have performed their numerous and varied duties with commendable zeal, efficiency, and impartiality.

The additional increments of officers available under the national defense act of June 3, 1916, would, it is believed, be sufficient for the inspection of the Regular Army as increased under the same act; but, owing to the war, normal conditions are completely changed. These changed conditions, however, have been fully met by the act of May 18, 1917, under the provisions of which ample personnel will be available.

INSPECTOR GENERAL'S OFFICERS' RESERVE CORPS.

There have been many applications for admission to this corps, but only one applicant has been accepted. Some of the applicants were beyond the prescribed age; others did not come up to the standard set for admission.

INSPECTIONS.

The inspections prescribed by law, Army Regulations, and existing orders have been completed, except in a few cases.

Deficiencies and irregularities noted in these inspections have been duly reported and the requisite steps taken to secure proper remedial action.

In addition to prescribed inspections, the officers of the Inspector General's Department have made during the year, under orders from the War Department or from department commanders, a large number of special investigations.

AMERICAN NATIONAL RED CROSS.

Under the provisions of the act of Congress requiring the War Department to audit the receipts and expenditures of the American National Red Cross, the Secretary of War, under date of April 16, 1917, directed that this audit, beginning with the accounts for the year which ended December 31, 1916, be made by the Inspector General's Department.

For this purpose an addition to the clerical force of this office of three bookkeepers and accountants has been requested.

INSTRUCTION.

European war conditions have caused throughout the Army many radical changes in methods of instruction.

Instruction in signaling during the year has greatly improved.

At garrisoned posts the work of garrison schools has been satisfactory.

CLOTHING AND EQUIPMENT.

Reports of inspections have noted certain defects and deficiencies pertaining to clothing and equipment; but as war conditions will bring about desirable and needed changes, comment at this time would, it is believed, be inappropriate.

RESERVE OFFICERS' TRAINING CAMPS.

The management and conduct of the first series of camps instituted after the entry of this country into the war were characterized by lack of uniformity, especially in the status of the reserve officers, in carrying out the schedule of instruction and in the methods employed by the instructors in rating those undergoing training. These defects were to a great extent remedied in the second series of camps. As to the results accomplished in these camps, I hear nothing but good. They have provided a most satisfactory solution of a very difficult problem, viz, supplying junior officers for the National Army.

NATIONAL GUARD.

During the summer and fall of 1916 special field inspections were made of National Guard organizations called into the Federal service.

The armory inspections required by the national defense act of June 3, 1916, had been nearly completed when the work was interrupted by the declaration of war.

As the outcome of this war will determine the future military policy of the United States, comment upon the National Guard as an institution is at this time uncalled for.

DISPOSITION OF UNSERVICEABLE PROPERTY.

The present system of disposing of unserviceable public property, which has worked satisfactorily in time of peace, will not, it is be-

lieved, prove satisfactory during the war, when the quantity of property of various kinds which will become unserviceable will be enormous. To meet war conditions a system of "salvage" has been recommended.

ARMY TRANSPORTS.

The administration of the trans-Pacific transport service has been satisfactory. The trans-Atlantic transport service was established just prior to the close of the fiscal year.

POST EXCHANGES.

Auditing officers and post exchange councils have in some instances failed to perform fully their duties as prescribed by Post Exchange Regulations, yet as a whole there has been marked improvement in the management of post exchanges.

DISCIPLINE AND EFFICIENCY.

Conditions in the Regular Army, brought about by its expansion and by the loss of officers, noncommissioned officers, and experienced privates incident to the organization of the National Guard and the National Army, are unsatisfactory, and while unavoidable, are none the less unfortunate. However, those who are left will, I believe, prove equal to the situation and in due course of time will bring the Regular Army back to that high standard of efficiency which has always characterized it.

Very respectfully,

J. L. CHAMBERLAIN,
Inspector General:

The SECRETARY OF WAR.

REPORT OF THE JUDGE ADVOCATE GENERAL.

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REPORT OF THE JUDGE ADVOCATE GENERAL.

OCTOBER 1, 1917.

SIR: I submit the following report of the Judge Advocate General's Department for the year ending June 30, 1917:

REORGANIZATION OF THE JUDGE ADVOCATE GENERAL'S DEPARTMENT.

The reorganization of the Judge Advocate General's Department, under section 8 of the national-defense act approved June 3, 1916 (39 Stat., 166), was completed after the declaration of war with Germany by adding the remaining increments of increase authorized by that act to the regular force, making a total of 32 officers, as follows: One brigadier general, four colonels, seven lieutenant colonels, and twenty majors.

JUDGE ADVOCATE GENERAL'S RESERVE CORPS.

Under section 37 of the national-defense act approved June 3, 1916 (39 Stat., 166), creating the Officers' Reserve Corps, 56 appointments have been made in the Judge Advocate General's Reserve Corps, and of these 47 officers have been assigned to active duty in the Judge Advocate General's Office, the Provost Marshal General's Office, as judge advocates of the various Regular Army divisions, National Guard divisions, National Army divisions, the lines of communication, ports of embarkation, etc., in the field. On account of the large volume of legal work at department and division headquarters, involving much extra work in the preparation of wills and other legal instruments for the soldiers of the newly organized Army, it has been found necessary to provide an assistant to division judge advocates, and the Secretary of War has approved the appointment of one assistant judge advocate for each division.

PROVOST MARSHAL GENERAL'S OFFICE.

Upon the approval of the Selective-Service Act of May 18, 1917, Brig. Gen. Enoch H. Crowder, Judge Advocate General, was appointed Provost Marshal General and four regular judge advocates and 16 officers of the Judge Advocate General's Reserve Corps were detailed for duty in the Provost Marshal General's Office and have been on duty in that office to date.

INCREASE IN THE CLERICAL FORCE.

Additions to the permanent clerical force of the Judge Advocate General's Office of one clerk of class 4, one clerk of class 2, two clerks of class 1, and two clerks of class E were authorized in the legis-

lative, executive, and judicial appropriation act of March 3, 1917. Furthermore, the war caused such a tremendous increase in the volume of important current work that it has thus far been necessary to employ eight clerks of class 1, six clerks of class \$1,100, and three assistant messengers at \$720 each in addition to the regular force during the present emergency.

NEW ARTICLES OF WAR.

The revised Articles of War, which had been pending before the War Department since December, 1903, and before Congress since April, 1912, were included in the act making appropriations for the support of the Army for the fiscal year 1917, approved August 29, 1916 (39 Stat., 650). Articles 4, 13, 14, 15, 29, 49, and 92 took effect immediately upon the approval of the act, and the rest of the new military code became effective March 1, 1917. The Executive order prescribing the maximum limits of punishment in time of peace was published in the new Manual for Courts-Martial.

COURTS-MARTIAL JURISDICTION.

Upon the creation of the new geographical Northeastern and Southeastern Departments, the organization of the new Army under the selective-service act of May 18, 1917, into the headquarters, United States forces in France, into two Regular Army divisions, 16 National Guard divisions, and 16 National Army divisions, as well as the authorization of courts-martial jurisdiction at the United States Disciplinary Barracks, at Fort Leavenworth, Kans., and the Pacific branch at Alcatraz, Cal., Fort McDowell, Cal., the China expedition, the ports of embarkation at Newport News, Va., West Point, N. Y., in addition to the provisional divisions with the punitive expeditionary forces in Mexico in March, 1917, 47 new or additional courts-martial jurisdictions were established during the year for the enforcement of military law throughout the service.

REVISION OF THE MANUAL FOR COURTS-MARTIAL.

Upon the enactment of the new Articles of War, the Manual for Courts-Martial and Courts of Inquiry was revised to include the new military code as well as new forms of charges, and a chapter on evidence, making it a comprehensive manual governing military procedure and published and issued to the service in January, 1917.

SUPPLEMENT TO THE DIGEST OF OPINIONS OF THE JUDGE ADVOCATE GENERAL, 1912.

A reprint, with certain minor corrections and additions, of the Digest of Opinions of the Judge Advocate General, 1912, including a supplement containing the digest of the opinions of the office from July 1, 1912, to April 1, 1917, was made and distributed to the Army.

REPRINT OF THE MILITARY LAWS OF THE UNITED STATES.

The 1915 edition of the Military Laws of the United States with a supplement including the laws of the Sixty-fourth Congress up to March 5, 1917, was also made and distributed to the service.

CODIFICATION OF MILITARY LAWS OF THE UNITED STATES.

The Army appropriation act for the fiscal year ending June 30, 1917, directed the Secretary of War to cause to be prepared a revision and codification of the military laws of the United States, conforming in scope and character to the revision and codification of the laws of the United States of a permanent and general nature, directed by the act of March 3, 1901, said revision to be finished within two years, and appropriated \$5,000 to pay the expenses of clerical hire, printing, and other expenses incident thereto. The Secretary of War directed the Judge Advocate General's Office to prepare the revision. On December 20, 1916, the Secretary of War made a preliminary report to Congress upon the progress of the work of revision, but on account of the enormous increase in the volume of highly important legal work thrown upon this office during the present war, and on account of the many changes in military legislation due to the exigency of war, work on the revision and codification of these laws has necessarily been suspended, but it will be resumed at the first opportunity and prosecuted as promptly as conditions will permit.

TRIALS IN CIVIL COURTS.

During the last fiscal year a number of important insular cases involving much investigation and consideration were prepared and presented by this office in the Supreme Court of the United States and also in the Circuit Court of Appeals for the First Circuit, to which the District of Porto Rico belongs. In addition to these, 27 habeas corpus cases in the Federal courts, arising in connection with the employment of the Militia or National Guard in the service of the United States, were prepared and tried in the Federal courts, as well as other important litigation prepared and presented by this office.

TRIALS BY GENERAL COURTS-MARTIAL.

There were 6,102 trials by general courts-martial in the Regular Army during the year 1917, of which trials 357 resulted in acquittals, and 1,436 trials by general courts-martial in the National Guard during the year 1917, of which 209 resulted in acquittals, as against 4,743 trials by general courts-martial in the Regular Army during the year 1916, 5,339 for 1915 and 4,572 for 1914, showing an increase of more than 28 per cent as to the Regular Army over the trials for 1916. In making this comparison, however, it should be remembered that Congress authorized by joint resolution of March 17, 1916, that the organized enlisted strength of the Regular Army should be maintained at its maximum during an emergency and that the enlisted strength for the period covered by the report for 1917 was very much in excess of that for the year 1916.

DELAY IN GENERAL COURT-MARTIAL TRIALS.

While the judge advocates at the department headquarters have continued their efforts to reduce the delay between the arrest of the soldier under charges and the final action by the reviewing authority in his case, the unsettled conditions affecting the Army, requiring

a large portion of the troops to be stationed on the Mexican border, away from their permanent stations, have caused the average number of days of delay for the year 1917 to increase to 37, as compared to 36 in 1916, 33 in 1915, and 34 in 1914 for the Regular Army. The Central Department shows a decrease in the Regular Army from 40 for 1916 to 39 for 1917; the Hawaiian Department shows a decrease from 26 for 1916 to 24 for 1917; the Panama Canal Department shows a decrease from 32 for 1916 to 28 for 1917; the Philippine Department has dropped from 37 for 1916 to 32 for 1917; the Western Department has dropped from 46 for 1916 to 44 for 1917; West Point from 26 for 1916 to 25, $\frac{1}{2}$ for 1917; while the Eastern Department has increased from 37 for 1916 to 48 for 1917; the Southern Department from 42 for 1916 to 53 for 1917. As to the National Guard, there are no figures for prior years from which to make comparisons, but in five divisions and departments the number of days in confinement exceed 50; while in no department or division is the number of days as low as the average number of days for the Regular Army. The following table shows the average delays in the several departments for the past six years and in the provisional divisions, etc., for the year 1917:

	1912	1913	1914	1915	1916	1917	
						Regular Army.	National Guard.
	Days.	Days.	Days.	Days.	Days.	Days.	Days.
Central Department ¹	48	48	45	40	40	39	42
Eastern Department ¹	48	47	42	37	37	48	48
Hawaiian Department.....		36	32	22	26	24	
Northeastern Department.....						47	38
Panama Canal Department.....					32	28	
Philippine Department ¹	25	38	30	37	37	32	
Southeastern Department.....						40	48
Southern Department.....		44	39	39	42	53	56
Western Department ¹	44	40	41	40	46	44	46
West Point.....			25	38	26	25.8	
China expedition.....						20	
United States Disciplinary Barracks.....						42	
United States Disciplinary Barracks, Pacific Branch.....						16	
Recruit depot, Fort McDowell.....						44	
Punitive expedition (Mexico).....						36	
First Provisional Cavalry Division.....						42	
First Provisional Infantry Division.....						39.9	
Second Provisional Infantry Division.....						37	
Third Provisional Infantry Division.....						38	52
Tenth Provisional Infantry Division.....							50
Eleventh Provisional Infantry Division.....							43
Twelfth Provisional Infantry Division.....						35	55
Thirteenth Provisional Infantry Division.....							54.3

¹ These were "Divisions" in 1912, and the figures given under that year so relate to them.

TRIALS BY SPECIAL COURTS-MARTIAL.

During the year 1917 there were 2,966 trials of enlisted men in the Regular Army by special courts-martial, of which trials 254 resulted in acquittals, as against 2,153 trials in 1916 and 2,533 in 1915, showing an increase slightly in excess of 37 per cent over the convictions by special courts-martial for 1916, and an increase of 17 percent over the convictions for 1915. There were 10 general prisoners tried by special courts-martial during 1917 and 967 trials by special courts-martial of members of the National Guard during the same period, resulting in the acquittal of 83.

TRIALS BY SUMMARY COURTS-MARTIAL.

The total number of trials of enlisted men of the Regular Army by summary courts-martial during the year 1917 was 48,286, of which trials 1,628 resulted in acquittals, as compared with 37,877 trials during the year 1916, and 40,905 trials during the year 1915, showing an increase slightly in excess of 27 per cent over the year 1916, and an increase slightly in excess of 17 per cent over the year 1915. There were also 30,866 trials by summary courts-martial of members of the National Guard in Federal service during the same period, of which trials 1,960 resulted in acquittals.

DESERTION.

Notwithstanding the raising of the Army to its maximum enlisted strength authorized by law under the joint resolution of March 17, 1916 (39 Stat., 36), the statistics show that there were only 2,818 enlisted men of the Regular Army tried by general court-martial for desertion in 1917, as against 1,950 in 1916 and 2,533 in 1915, showing an increase of 44.5 per cent against 1916, and 11.2 per cent against 1915. There were also 550 enlisted men of the National Guard in the Federal service tried for desertion during 1917. Of this number 299 were convicted of desertion and 251 of the lesser included offense of absence without leave. There were also 269 enlisted men tried by special court-martial in 1917, as compared to 432 in 1916, indicating a decrease of 37.73 per cent. There were 107 enlisted men tried for desertion by special courts-martial and convicted of the lesser included offense of absence without leave only in 1917, as compared to 229 in 1916, showing a decrease of 53.27 per cent.

The desertions reported during the fiscal year 1917 amount to 2,818, or 1.71 per cent of the total number of 159,180 enlistment contracts in force during the year, as compared to 2,382 reported desertions and a per cent of 2.40 for last year.

In this connection it should be remarked that these figures include the cases in which the charge of desertion was removed as having been erroneously made, in which the accused was acquitted, in which he was convicted of the lesser included offense of absence without leave and retained or dishonorably discharged from the service. The following table exhibits the true as compared with the reported percentages for the past nine years:

Year.	Desertions reported.	Charges unsustained.	True number of desertions.	Reported percentages.	True percentages.
1909.....	4,993	311	4,682	4.97	4.66
1910.....	3,404	696	2,708	3.66	2.92
1911.....	2,504	680	2,124	2.28	1.93
1912.....	3,411	560	2,851	3.00	2.50
1913.....	4,451	871	3,580	4.15	3.34
1914.....	3,882	810	3,072	3.10	2.45
1915.....	4,435	795	3,640	3.23	2.65
1916.....	2,382	588	1,794	2.40	1.61
1917.....	2,818	1,100	1,718	1.77	1.07

CIVIL AND MISCELLANEOUS WORK OF THE OFFICE.

This has probably been the most important year in the matter of important military legislation since the foundation of our Government; in addition to the usual volume of such work thousands of questions affecting these important acts of Congress enlarging and reorganizing the Military Establishment have been submitted to this office for consideration and report, as indicated by the following table showing the number of opinions rendered by this office during the fiscal year 1917:

Questions involving appropriations.....	84
Examination of bonds.....	3,189
To secure issues of Government property to rifle clubs under the act of April 27, 1914.....	401
To secure issues of Government property to schools under the act of April 27, 1914.....	90
To secure issues of Government property to universities and colleges having courses in military training.....	36
Of officers of the Quartermaster Corps.....	331
Regular Army.....	279
Officers' Reserve Corps.....	1,372
National Army.....	283
Of quartermaster agents.....	5
Of disbursing officers of the militia.....	56
To secure the performance of contracts.....	324
Indemnity bonds.....	11
Deputy disbursing officer, Rock Island Arsenal, Ill.....	1
Claims against the Government.....	34
Clemency to general prisoners.....	1,794
Contracts.....	90
Detached service.....	22
Discharge.....	74
Eight-hour law.....	57
Enlistment.....	67
Gratuities to disabled or deceased officers and soldiers.....	76
Home Guards.....	4
Instruments relating to Government property.....	173
Leases.....	99
Revocable licenses.....	74
Parole of general prisoners.....	175
Proposed legislation.....	55
Loans and sales of Government property.....	13
The militia.....	261
Navigable waters.....	32
Pay and allowances.....	150
Permits for work in navigable waters.....	337
For wharves and similar structures, dredging, etc., under authority of section 10 of the act of Mar. 3, 1899.....	101
For bridges across waterways the navigable portions of which lie wholly within a single State, under authority of section 9 of said act.....	165
For bridges across navigable waters of the United States, under the general bridge act of Mar. 23, 1906, and special acts.....	50
Notices to alter bridges which have become unreasonable obstructions to navigation, under authority of section 18 of the act of Mar. 3, 1899.....	14
For deposits of material in navigable waters, under authority of section 13 of the act of Mar. 3, 1899.....	1
For structures in navigable waters of Porto Rico, under authority of the act of June 11, 1906.....	6
Prisoners of war.....	15
Private debts of persons in the military service.....	8
Government reservations.....	189
Retirement.....	36
Questions concerning taxation.....	7

Reenlistment of discharged general prisoners.....	5
Restoration of general prisoners.....	458
Restoration of citizenship.....	95
Selective draft (act May 18, 1917).....	19
Transfer of general prisoners.....	137
Volunteers.....	5
Transportation.....	40
Miscellaneous opinions and reports.....	2,529
Total.....	10,230

The total number of 10,230 legal opinions, reports, and instruments prepared during the year as compared with 6,056 for the last fiscal year shows an increase in the volume of work of 68.92 per cent.

The following tables, marked "Appendix A," shows detailed statistics as to the number of trials by general and special courts-martial and the classification of offenses tried by all courts-martial, as well as the trials by summary courts.

There is also submitted herewith, marked "Appendix B," a summarization of reports of judge advocates on duty at department headquarters and other general court-martial jurisdictions during the year, in order that the remarks and recommendations of each officer may be scrutinized by the others and by the service generally, with a view to eliciting broader criticism as to the betterments of the legal work of the Army.

S. T. ANSELL,
Acting Judge Advocate General.

THE SECRETARY OF WAR.

APPENDIXES.

APPENDIX A.

Number of trials by general court-martial.

Commissioned officers:		
Regular Army.....		54
Convictions.....	43	
Convictions disapproved.....	1	
Acquittals approved.....	5	
Acquittals disapproved.....	1	
Awaiting action by War Department (June 30, 1917).....	4	
National Guard in Federal service.....		67
Convictions.....	49	
Convictions disapproved.....	2	
Acquittals approved.....	7	
Acquittals disapproved.....	6	
Awaiting action by War Department (June 30, 1917).....	3	
Cadets, convictions approved.....		4
Enlisted men:		
Regular Army.....		6,174
Convictions approved.....	5,741	
Convictions disapproved.....	67	
Acquittals approved.....	318	
Acquittals disapproved.....	44	
Proceedings declared inoperative.....	1	
Desertion proceedings declared void.....	3	
National Guard in Federal service.....		1,538
Convictions approved.....	1,258	
Convictions disapproved.....	56	
Acquittals approved.....	192	
Acquittals disapproved.....	27	
Proceedings declared inoperative.....	4	
Desertion proceedings declared void.....		
Plea in bar sustained.....	1	
General prisoners.....		61
Convictions approved.....	56	
Convictions disapproved.....	2	
Acquittals approved.....	3	
Other persons subject to military law.....		6
Convictions approved.....	4	
Convictions disapproved.....		
Acquittals approved.....	1	
Acquittals disapproved.....	1	
Total.....		7,904

The statistics as to trials by general court-martial in recent years are as follows:

	1909	1910	1911	1912	1913	1914	1915	1916	1917	
									Regular Army.	National Guard.
Commissioned officers tried.....	43	30	42	29	33	32	35	31	54	1 67
Commissioned officers dismissed.....	10	7	6	6	8	8	7	8	11	* 27
Cadets tried.....	2	4	5	10	7	1	3	2	4	.....
Cadets dismissed.....	2	.....	6	2	1	.....	.....	.....	1	.....
Enlisted men tried.....	5,449	5,127	3,756	4,345	5,121	4,466	5,235	4,660	6,174	1,538
General prisoners tried.....	56	45	48	53	48	71	66	50	61	.....
Percentage of trials of enlisted men to average enlisted strength of Army.....	7.4	6.98	5	5.2	5.8	4.7	4.3	4.7	4.9	(*)

¹ Four cases in which the result of two trials of same officer was promulgated in one order.

² One officer was sentenced to confinement for 20 years and another to confinement for 6 years in the United States penitentiary.

³ Average strength of the militia while in the Federal service not known.

Additional general court-martial statistics.

	1913	1914	1915	1916	1917	
					Regular Army. ¹	National Guard.
Charges received recommending trial by general courts-martial.....	5,546	5,199	6,191	5,037	7,789	2,009
Cases referred for trial by general courts-martial.....	5,193	4,585	5,468	4,619	6,594	1,652
Cases returned for trial by general courts-martial.....	215	460	493	217	591	198
Charges upon which no trial was ordered.....	138	116	232	103	209	66
Defective charges requiring amendment before reference.....	2,117	2,642	2,435	1,733	1,089	641
Cases in which proceedings were returned for revision.....	397	297	422	348	277	272
Charges transmitted to other jurisdictions for trial.....					236	101
Enlisted men dishonorably discharged as result of trial.....	2,653	2,732	3,241	2,906	3,528	536
When dishonorable discharge resulted only from 5 previous convictions.....	412	299	368	438	323	13

¹ Includes small number of militia cases where reports did not separate them from Regular Army.

	1910	1911	1912	1913	1914	1915	1916	1917	
								Regular Army.	National Guard.
Total trials by general courts-martial.....	5,206	3,851	4,435	5,209	4,572	5,339	4,743	6,199	1,538
Convictions approved.....	4,320		4,063	4,831	4,292	4,992	4,321	5,848	1,307
Trials of enlisted men by special courts-martial.....	346	206	249	384	1,953	2,523	2,153	2,966	967
Acquitted.....	96		52	54	175	202	159	254	83
Trials of general prisoners by special courts-martial.....								9	
Acquitted.....								1	
Trials of enlisted men by summary courts-martial.....	42,275	33,032	37,315	39,795	36,856	40,905	37,877	48,236	30,838
Acquitted.....	1,216		1,086	1,023	1,102	1,166	965	1,628	1,960
Trials of general prisoners by summary courts-martial.....								25	

DESERTION.

Statistics for desertion for the five fiscal years preceding June 30, 1917, are set forth below:

	1911	1912	1913	1914	1915	1916	1917	
							Regular Army.	National Guard.
Tried for desertion by general courts-martial.....	1,347	1,577	1,806	2,097	2,535	1,950	3,016	539
Convictions of desertion and dishonorably discharged.....	932	944	1,107	1,280	1,637	1,359	1,485	230
Convicted of desertion and not dishonorably discharged.....	14	98	163	149	120	84	368	61
Convicted of absence without leave only and dishonorably discharged.....	101	117	169	158	161	147	451	32
Convicted of absence without leave only and not dishonorably discharged.....	293	414	457	492	531	364	644	210
Tried for desertion by special courts-martial.....					201	432	156	113
Tried for desertion by special courts-martial and convicted of absence without leave only.....					11	229	50	57

Classification of offenses tried by all courts-martial.

Article of War.	Description of offense.	Number of convictions.			
		Off- cers.	Enlisted men.		General prisoners.
			Regular Army.	National Guard.	
8-57	Making false return.....				
	Offenses relating to public property:				
16-83	Wasting ammunition.....	1	21	11	
17-84	Selling horse or arms.....	1	73	4	
17-84	Selling accouterments or clothing.....		80	56	
17-84	Losing or spoiling horse or arms through neglect.....		74	105	
17-84	Losing or spoiling accouterments or clothing through neglect.....		880	120	
62-96	Abusing public animals.....		165	59	
62-96	Destroying public property.....		623	36	2
62-96	Pawning and disposing of clothing.....		100	27	
62-96	Attempting to sell clothing.....		14	12	
62-84	Losing arms, accouterments, stores, or other property.....		126	52	
62-96	Disposing of equipment.....		29	7	1
62-96	Disposing of other public property.....		35	19	
62-96	Other offenses relating to public property under sixty-second article of war.....	3	132	94	
60-84	Purchasing Government property.....		46	6	
	Offenses against constituted authority:				
20-62	Disrespect to commanding officer.....	1	99	176	
21-64	Offering violence to superior officer.....	5	13	51	1
21-64	Disobeying superior officer.....	12	331	228	
22-66	Mutiny.....		14	28	
21-67	Failure to endeavor to suppress mutiny.....		7	51	
21-67	Disobeying noncommissioned officer while quelling fray, etc.....		25	29	
62-96	Disobedience of standing orders or regula- tions.....	26	5,297	3,182	5
62-96	Disobedience of or failure to obey commis- sioned officer.....	10	717	582	2
62-65-96	Disobedience of or failure to obey noncom- missioned officer.....		1,662	2,395	2
62-96	Disobedience of or failure to obey sentinel.....		182	197	7
61-96	Impugning professional conduct of superior officer.....				
62-96	Disrespect or insulting language or insub- ordinate conduct or threats toward or striking or assaulting a commissioned officer.....	5	562	368	
62-96	Disrespect or threats or insulting language or insubordinate conduct toward or as- saults upon a noncommissioned officer.....		2,800	1,415	30
62-96	Disrespect or insulting language or insub- ordinate conduct or threats toward or as- saults upon a sentinel.....		210	210	2
62-96	Resisting arrest by military authorities.....		346	267	
62-96	Breach of arrest.....	15	1,136	460	5
62-96	Breaking quarantine or restrictions or parole.....		567	1,149	11
62-96	Escape or conspiring to escape from confine- ment or sentinel.....	1	181	116	32
62-96	Other offenses against those in authority.....	8	272	26	32
	Offenses against subordinates:				
62-96	Abuse by officer or noncommissioned offi- cer of authority over subordinates.....	1	15	4	
	Conduct unbecoming an officer and a gentleman:				
61-96	Financial irregularities.....	28			
61-96	Other irregularities.....	3			
61-96	Violation of pledge.....	18	2		
62-54	Fraudulent enlistment.....		180	66	
62-96	Carrying concealed weapons.....		81	42	2
	Offenses by guards:				
29-56	Leaving post.....		139	152	
29-61	Sleeping on post.....		170	190	
40-61-96	Quitting guard.....	3	22	185	
62-96	Sentinel allowing prisoner to escape.....		82	75	
62-96	Sentinel permitting prisoner to obtain intox- icating liquor.....		34	64	
62-96	Sentinel sitting down on post.....		248	207	
62-96	Other offenses committed by sentinels or others on guard in connection with such duty.....	10	86	626	

Classification of offenses tried by all courts-martial—Continued.

Article of War.	Description of offense.	Number of convictions.				
		Officers.	Enlisted men.		General prisoners.	Other forces.
			Regular Army.	National Guard.		
	Offenses of violence:					
62-66	Fighting.....				2	
62-66	Threats to kill or injure.....	4	48	21		
62-63	Assault with dangerous or deadly weapon.....		21	54	1	
62-63	Assault with intent to do bodily harm.....		188	72	12	
62-63	Assault with intent to kill.....		26	15	1	
62-63	Assault with intent to commit robbery.....		12	5		
62-66	Assault, or assault and battery, and other offenses of violence not against one in authority nor otherwise classified under this subhead.....	7	399	217	1	
67-63	Manslaughter.....		2	17		
	Offenses involving personal dishonesty:					
60-94	Embezzlement or misappropriation.....	5	100	22		
60-94	Forgery.....		4		11	
60-94	Larceny.....		379	152		3
60-94	Making or presenting false claims.....		60	17		
60-94	Wrongful acquirement or disposition of Government property.....		48	43		
60-94	Any other violation of the sixtieth article of war.....	1	55	24		
62-61	Failure to pay debts.....	4	12	20		
62-61	Failure to return borrowed property.....		150	26		
62-61	Selling, pawning, or otherwise disposing of borrowed property.....	1	39	21		
62-63	Perjury or subornation of perjury.....		14			
62-66	Falsifying accounts.....	4	31	1		
62-66	Forgery and uttering forged papers.....	13	39	21		
62-66	Fraudulent financial transactions.....		60	6		
62-63	Larceny.....		285	539	21	1
62-63	Embezzlement.....		273	139		
62-63	Robbery.....		34	15		
62-66	Having possession of stolen property.....		2	1		
62-63	Burglary.....		14	13	3	
62-63	Attempting burglary.....		30			1
62-66	Obtaining money or other property under false pretenses.....		47	9		
62-66	Other offenses under the sixty-second article of war involving personal dishonesty of the offender.....	15	520	201	1	
	Unauthorized absences:					
31-61	Lying out of quarters.....	1	245	155		
32-61	Absence without leave.....	23	14,893	16,161		1
33-61	Failure to attend drill, roll call, etc.....	3	7,797	5,944		
47-58	Desertion.....	1	2,122	641		
42-61	Absence without leave from duty.....	6	107	973		
	Offenses closely connected with military duty:					
62-66	Losing or abandoning equipment.....		1	18		
36-66	Hiring men to perform duty.....		9	9		
62-66	Quitting ranks on march.....		6	3		
51-59	Advising another to desert.....	1	1	6		
62-66	Careless handling or discharge of firearms.....	12	645	312		1
62-66	False official statement or report.....	43	661	142	4	
62-66	Impersonating superior officer or sentinel.....		33	47		
62-66	Conspiring to desert.....		65	6		
62-66	Refusing to submit to surgical operation or medical treatment.....		221	41		1
62-66	Refusing to submit to medical treatment for syphilis.....		33	35		
62-66	Malingering.....		83	42		
62-66	More than 1 mile from camp without pass.....		44	10		
62-66	Sleeping while on duty.....		295	144		
62-66	Failure to perform company punishment.....		6	10		
62-66	Failure to report for prophylactic treatment.....		667	65		2
62-66	Failure to salute.....		6	4		
62-66	Other neglects of duty not classified under this subhead.....	19		903		3
	Offenses connected with intoxicating liquor:					
38-85	Drunkenness on duty.....	9	2,086	648		1
62-66	Drunkenness at post or in quarters.....	25	3,430	1,309		1
62-66	Drunkenness and disorderly conduct at post (or in quarters).....	2	1,586	2,324		

Classification of offenses tried by all courts-martial—Continued.

Article of War.	Description of offense.	Number of convictions.			
		Offi- cers.	Enlisted men.		General prisoners.
			Regular Army.	National Guard.	
	Offenses connected with intoxicating liquors—Continued.				
62-96	Drunkenness and disorderly conduct, causing offender's arrest and conviction by civil authorities.....		254	144	
62-96	Having possession of or selling or buying intoxicating liquor.....		559	164	
62-96	Introducing liquor into camp, quarters, etc..		1,674	322	
62-96	Other offenses connected with intoxicating liquor and not otherwise classified under this subhead.....	15	753	683	
	Offenses against decency:				
62-96	Committing a nuisance.....		235	211	
62-96	Indecent exposure of person.....		46	10	
62-96	Sodomy and other unnatural practices.....		43	2	1
62-96	Assault with intent to commit rape.....		4		
62-96	Other similar offenses.....		19	7	
62-96	Conduct (not involving drunkenness) causing arrest and conviction by civil authorities.....	1	44	38	
62-96	Lending money at usurious rates of interest....		18	4	
62-96	Use or possession of narcotics.....		29		
53-59-105	Offenses against private property.....		36		
62-96	Offenses to the disgrace of the uniform and service.....				
62-96	Profane or provoking or threatening or indecent language or creating a disturbance in quarters.....	11	158	21	5
62-96	Gambling in post or quarters.....		77	32	
62-96	Attempts to commit suicide.....		2		
62-96	Disorderly conduct and neglects not classified..	4	449	397	
62-96	Dirty arms, accouterments, or clothing.....		155	5	
62-96	Visiting neighboring towns without pass.....		5		
62-96	Wearing improper uniform or civilian clothing without authority.....		107	12	
62-96	Fraudulent use of class A card.....				
62-96	Having contraband in guardhouse.....		2		2
62-96	Missing or sailing on transport without authority.....				
62-96	Prisoner refusing or failing to work.....		17		
62-96	Resisting arrest by or interfering with civil authorities.....		30	25	
62-96	Trespass and loitering around private quarters..		7		
62-96	Offenses against civilians.....				
62-96	Offenses not otherwise classified.....	22	742	156	4
61-95	Other offenses unbecoming officer and gentleman.....	14			
61-95	Mayhem.....		1		
19-62	Disrespect toward President.....		4	8	
58-92	Murder (time of war).....		1		
58-92	Rape (time of war).....		1		
58-92	Manslaughter (time of war).....		4		
58-92	Assault with intent to kill (time of war).....		3		
58-92	Other offenses of violence (time of war).....		2		
61-95	Indecent conduct toward female child.....	1			
62-92	Rape.....			1	
32-00	Seduction.....				
00-53	Attempt to desert.....				
62-96	Drunk and disorderly, bringing discredit on service.....	16	136	25	
	Failure to appear for muster.....			1	
61-95	Bigamy.....	1			
61-95	Negotiation for commission in Mexican army..	1			
62-96	Borrowing money from enlisted men.....	10			

Trials by summary courts.

Posts.	Average of enlisted strength present on last day of each month.	Total number of trials by summary courts during year.	Percentage of trials by summary courts during year.
Alcatraz Island, Cal.	235	151	.64
Apache, Fort, Ariz.			
Armstrong, Fort, Hawaii			
Army and Navy General Hospital, Arkansas.			
Baker, Fort, Cal.	317	49	22.6
Balboa, Canal Zone.			
Baltimore, Md., coast defenses of.			
Barry, Fort, Cal.	207	30	14.5
Bayard, Fort, N. Mex.			
Benicia Arsenal, Cal.			
Benj. Harrison, Fort, Ind.	18	15	1.39
Bliss, Fort, Tex.			
Boise, Barracks, Idaho.		1	
Boston, Mass., coast defenses of.			
Brady, Fort, Mich.	7		
Cape Fear, N. C., coast defenses of.			
Casey, Fort, Wash.	285	59	20.7
Charleston, S. C., coast defenses of.			
Chesapeake Bay, coast defenses of.			
Clark, Fort, Tex.			
Columbia, Fort, Wash.	100	2	.2
Columbus Barracks, Ohio.	1,472	345	.23
Corozal, Canal Zone.	1,006	492	48
Cristobal, Canal Zone.	50	20	40
Crook, Fort, Nebr.	7		
D. A. Russell, Fort, Wyo.	46	4	.09
D. A. Russell, Wyoming (western, May to June).	2,570	46	17.9
Davis, Fort, Alaska.	85	31	36.5
Delaware, coast defenses of.			
Department Headquarters, Hawaiian Department.	43	2	4.7
Department Hospital, Hawaiian Department.	10	92	83.6
DeRussy, Fort, Hawaii.		140	
Des Moines, Fort, Iowa.	16	0	
Douglas, Fort, Utah.	505	144	28.5
Douglas, Ariz.	3,783	374	10.99
Eastern N. Y., coast defenses of.			
Empire, Canal Zone.	1,408	376	26
E. S. Otis, Camp, Canal Zone.	1,411	554	39
Ethan Allen, Fort, Vt.			
Flagler, Fort, Wash.	211	68	32.2
Gallard, Camp, Canal Zone.	1,136	242	21
Galveston, Tex., coast defenses of.			
Gatun, Canal Zone.	610	206	33
George Wright, Fort, Wash.	106	58	54.7
Gibbon, Fort, Alaska.	128	80	62.5
Grant, Fort, Canal Zone.	911	429	47
Harrison, Fort, Mont.			
Henry Barracks, P. R.			
Huachuca, Fort, Ariz.	1,154	88	1.077
Jay, Fort, N. Y.			
Jefferson Barracks, Mo.	1,708	372	.22
Kamehameha, Fort, Hawaii.		157	
Keogh, Fort, Mont.			
Key West Barracks, Fla.			
Lawton, Fort, Wash.	156	130	83.3
Leavenworth, Fort, Kans.	58	74	1.24
Letterman General Hospital, California.	460	195	42.1
Lincoln, Nebr.			
Liscum, Fort, Alaska.	62	7	11.3
Logan, Fort, Colo.	645	63	.10
Logan H. Roots, Fort, Ark.			
Long Island Sound, coast defenses of.			
MacArthur, Cal.	219	17	* 7.8
McDowell, Fort, Cal.	2,518	41	.054
McIntosh, Fort, Tex.			
McPherson, Fort, Ga.			
Mackenzie, Fort, Wyo.	10		
Madison Barracks, New York.			
Mason, Fort, Cal.	5	3	60
Meade, Fort, S. Dak.	10		
Miley, Fort, Cal.	194	45	23.2
Missoula, Fort, Mont.	13	11	84.5
Mobile, Ala., coast defenses of.			
Myer, Fort, Va.			
Naco, Ariz.	565	5	.007
Narragansett Bay, coast defenses of.			
New Bedford, Mass., coast defenses of.			
New Orleans, La., coast defenses of.			
Niagara, Fort, N. Y.			

* Two months.

* Four months only.

Trials by summary courts—Continued.

Posts.	Average of enlisted strength present on last day of each month.	Total number of trials by summary courts during year.	Percentage of trials by summary courts during year.
Nogales, Ariz.	2,347	83	.031
Oahu, Hawaii, coast defenses of.	1,306	450	34.4
Oglethorpe, Fort, Ga.			
Omaha, Fort, Nebr.	60	11	.18
Ontario, Fort, N. Y.			
Panama, coast defenses of.			
Pensacola, Fla., coast defenses of.			
Plattsburg Barracks, N. Y.			
Porter, Fort, N. Y.			
Portland, Me., coast defenses of.			
Portsmouth, N. H., coast defenses of.			
Potomac, coast defenses of.			
Presidio of Monterey, Cal.	68	23	39.7
Presidio of San Francisco, Cal.	520	147	29.8
Quarry Heights, Canal Zone ¹ .	206	777	381
Randolph, Fort, Canal Zone.	288	94	37
Riley, Fort, Kans.	125	143	1.14
Robinson, Fort, Nebr.	16		
Rock Island Arsenal, Ill.	115	30	.26
Rosecrans, Fort, Cal.	277	129	46.6
Ruger, Fort, Hawaii.		158	
St. Michael, Fort, Alaska.	57	37	64.9
Sam Houston, Fort, Tex. ¹			
Sandy Hook, N. J., coast defenses of.			
San Juan, P. R.			
Savannah, Ga., coast defenses of.			
Schofield Barracks, Hawaii.	6,284	2,208	36.6
Shafter, Fort, Hawaii.	1,308	521	39.8
Sheridan, Fort, Ill.	28		
Sherman, Fort, Canal Zone.	470	201	42
Signal Corps Aviation Corps.			
Sill, Fort, Okla. ¹			
Slocum, Fort, N. Y.	23		
Snelling, Fort, Minn.			
Southern New York, coast defenses of.			
Stevens, Fort, Oreg.	184	69	37.5
Tampa, Fla., coast defenses of.			
Thomas, Fort, Ky.			
United States Disciplinary Barracks, Fort Leavenworth, Kans.	220	143	65
United States District Barracks (5 months).	8,255	34	10.44
Valdez, Alaska.	30	6	30
Vancouver Barracks, Wash.	685	101	14.7
Walter Reed General Hospital, District of Columbia.			
Ward, Fort, Wash.	98	23	28.5
Washington Barracks, District of Columbia.			
Wayne, Fort, Mich.	12		
West Point, N. Y.	752	281	37.32
William H. Seward, Fort, Alaska.	150	47	31.3
Winfield Scott, Fort, Cal.	1,083	159	14.7
Wood, Fort, N. Y.			
Worden, Fort, Washington.	598	66	11
Yellowstone, Fort, Wyo.	427	49	11.5
Yuma, Ariz.	1,033	30	.029
Recruiting stations:			
Cleveland, Ohio.	(²)	4	
Chicago, Ill.	(²)	11	
Enlisted men, Chicago, Ill.	(²)	3	
Grand Rapids, Mich.	(²)	3	
Indianapolis, Ind.	(²)	1	
Toledo, Ohio.	(²)	2	
Camps of instruction.		451	
Camp at San Diego, Cal.	246	92	37.4
Camp at Calexico, Cal.	236	67	28.3
Miscellaneous:			
Augusta, Frankford, Watertown, and Watervliet Arsenals and Springfield Armory.		68	
Mapping details, Canal Zone.	375	15	.04
Transports.		79	
Recruiting and signal stations in the field, and miscellaneous.		325	
Twenty-seventh Infantry ⁴ .	890	47	5.00
Ordnance Depot, Hawaii.	12		

¹ The Summary Court of the Provost Guard Camp, Quarry Heights, tries offenders from all posts on the Canal Zone for offenses committed at or in the vicinity of Panama, Republic of Panama. The number of trials of members of the Provost Guard Company for the fiscal year 1917 was 79.

² Two months.

³ Unknown.

⁴ Four months only.

Trials by summary courts—Continued.

Posts.	Average of enlisted strength present on last day of each month.	Total number of trials by summary courts during year.	Percentage of trials by summary courts during year.
PHILIPPINE ISLANDS.¹			
Angur Barracks.....	631	90	.....
Camp Eldridge.....	338	175	67.77
Camp Gregg.....	.....	.....	.....
Camp John Hay.....	503	96	19.08
Camp Keithly.....	604	47	51.66
Camp McGrath.....	738	496	67.20
Camp Nichols.....	90	28	28.33
Camp Overton.....	292	44	15.07
Camp Stotsenburg.....	1,933	1,156	59.75
Fort Mills.....	4,063	1,066	25.99
Fort San Pedro.....	817	20	6.30
Fort William McKinley.....	3,119	1,976	63.35
Ludlow Barracks.....	841	74	8.80
Manila:			
Cuartel de Espana, Department Hospital, and Ordnance Depot.....	1,056	785	74.33
Pettit Barracks.....	419	52	12.65
Regan Barracks.....	443	395	89.47
Warwick Barracks.....	418	53	12.68
Miscellaneous camps, stations, etc.....	.....	20	.....
Transports.....	.....	.....	.....

RECAPITULATION.

Eastern Department.....	{ 13,854	3,915	43.00
Central Department ²	45,184	12,968	29
Western Department.....	.....	3,491	.....
Southern Department ³.....	.....	2,396	.....
Hawaiian Department.....	9,050	3,363	36.00
Philippine Department.....	16,014	6,503	40.85
United States Disciplinary Barracks.....	3,256	34	10.44
United States Disciplinary Barracks, Pacific Branch.....	236	151	64
United States Military Academy.....	762	281	37.32
Canal Zone.....	7,871	3,497	43.00
China expedition.....	1,333	762	57.16
Northeastern Department.....	{ 11,662	455	.048
Southeastern Department.....	11,559	849	7.78
Punitive expedition.....	15,151	447	.029
First Cavalry Division.....	19,068	1,293	.064
First Infantry Division.....	.....	.....	.....
Second Division.....	13,882	1,292	.093
Third Division ⁴	8,217	575	.069
Tenth Division ⁵	565	5	.007
Eleventh Division.....	10,000	1,898	20.00
Twelfth Division ⁶	9,998	2,439	25.15
Thirteenth Division.....	.....	.....	19.20
Fort McDowell Recruit Depot.....	2,518	41	.0064

¹ Unknown.² No percentage of total trials is made for the reason that the strength at recruiting stations, temporary stations, and the militia was not reported to department headquarters.³ On account of frequent shifting of troops in this department it is impossible to compile data on the above subject.⁴ Approximately.⁵ 2 months.⁶ 4 months.

Percentage of trials by summary courts.

Posts or coast defense commands.	Average of enlisted strength present on each month.	Total number of trials by summary courts during year.	Percentage of trials by summary courts, during year.
Portland, Fort Williams, Me., Hq. (10 months).....	968	95	09
Portsmouth, Fort Constitution, N. H. (10 months).....	115	57	49
Boston, Fort Warren, Mass., Hq. (10 months).....	1,537	136	9
New Bedford, Fort Rodman, Mass., Hq. (10 months).....	94	48	51
Narragansett Bay, Fort Adams, R. I., Hq. (10 months).....	656	171	26
Long Island Sound, Fort H. G. Wright, N. Y., Hq.	1,277	181	14
Eastern New York, Fort Totten, N. Y., Hq.	837	214	26
Southern New York, Fort Hamilton, N. Y., Hq.	1,170	538	46
Sandy Hook, Fort Hancock, N. Y. Hq.	570	276	4
The Delaware, Fort Du Pont, Del., Hq.	548	407	74
Baltimore, Fort Howard, Md., Hq.	445	648	146
The Potomac, Fort Hunt, Va., Hq.	370	124	34
Chesapeake Bay, Fort Monroe, Va., Hq.	1,182	410	34
Cape Fear, Fort Caswell, N. C., Hq. (10 months).....	208	165	84
Charleston, Fort Moultrie, S. C., Hq. (10 months).....	425	192	45
Savannah, Fort Screven, Ga., Hq. (10 months).....	398	123	31
Tampa, Fort Dade, Fla., Hq. (10 months).....	229	105	46
Key West, Key West Barracks, Hq. (10 months).....	137	55	40
Pensacola, Fort Barrancas, Fla., Hq. (10 months).....	428	273	64
Mobile, Fort Morgan, Ala., Hq. (10 months).....	209	92	44
New Orleans, Jackson Barracks, Hq. (10 months).....	228	119	52
Galveston, Fort Crockett, Tex., Hq. (10 months).....	314	140	65
McPherson, Ga., Fort (10 months).....	127	72	59
Myer, Va., Fort.....	252	208	115
Niagara, N. Y., Fort.....	6	20	483
Oglethorpe, Ga., Fort.....	142	223	159
Ontario, N. Y., Fort.....	18	20	111
Plattsburg Barracks, N. Y.....	200	201	101
Porter, N. Y., Fort.....	12	20	166
San Juan, P. R.....	107	176	164
Thomas, Ky., Fort (10 months).....	252	120	48
Washington Barracks, D. C.....	339	161	47
Wood, N. Y., Fort.....	127	255	27
Total.....	13,654	5,915	43

Miscellaneous.

	Trials by summary courts-martial.		Trials by summary courts-martial.
Walter Reed General Hospital....	137	Aviation Station, Mineola.....	183
Recruiting Station.....	59	Rockaway Point.....	175
Slocum, N. Y., Fort.....	648	Hoboken, N. J.....	170
Sandy Hook, N. Y.....	5	Ellis Island.....	19
Arsenals and Springfield Armory..	105	Gettysburg, Pa. (2 months).....	106
Camps of Instruction.....	132	Syracuse, N. Y. (2 months).....	227
Miscellaneous.....			
Atlantic Branch, United States	718	Grand total.....	8,629
Disciplinary Barracks.....	30		

Percentage of trials by summary courts.

Regiments of National Guard.	Average of enlisted strength present on last day of each month.	Total number of trials by summary courts during year.	Percentage of trials by summary courts during year.
First Alabama Cavalry.....	750	460	61
First Alabama Infantry.....	942	300	32
Second Alabama Infantry.....	568	196	34
Fourth Alabama Infantry.....	680	285	42
Connecticut Field Artillery.....	417	96	23
First Connecticut Infantry.....	845	210	25
Second Connecticut Infantry.....	509	186	36
First Delaware Infantry.....	522	396	76
First District of Columbia Infantry.....	615	342	56
Second Georgia Cavalry.....	336	115	38
First Georgia Infantry.....	511	266	52
Second Georgia Infantry.....	1,136	112	9
Fifth Georgia Infantry.....	1,174	486	41
Third District of Columbia Infantry.....	1,142	449	39
First Kentucky Infantry.....	1,159	247	21
Second Kentucky Infantry.....	863	264	31
Third Kentucky Infantry.....	953	186	19
Second Maine Infantry.....	1,180	300	26
Fourth Maryland Infantry.....	1,133	415	37
Fifth Maryland Infantry.....	1,320	510	39
Second Massachusetts Infantry.....	1,612	618	38
Sixth Massachusetts Infantry.....	1,183	482	41
Ninth Massachusetts Infantry.....	1,524	515	34
First Mississippi Infantry.....	1,242	96	8
First New York Cavalry.....	778	102	.....
Second New York Infantry.....	1,387	218	13
Twenty-third New York Infantry.....	941	508	54
Forty-seventh New York Infantry.....	940	600	64
Seventy-first New York Infantry.....	1,438	592	41
Seventy-fourth New York Infantry.....	1,152	306	27
First New Jersey Infantry.....	1,217	831	28
Second New Jersey Infantry.....	1,053	242	23
Fifth New Jersey Infantry.....	1,301	462	36
North Carolina Engineers.....	169	14	9
Second North Carolina Infantry.....	707	82	12
Third Pennsylvania Field Artillery.....	290	110	40
First Pennsylvania Infantry.....	1,175	294	25
Third Pennsylvania Infantry.....	1,092	225	20
Thirteenth Pennsylvania Infantry.....	928	102	11
Eighteenth Pennsylvania Infantry.....	1,846	50	43
Rhode Island Coast Artillery Corps.....	550	18	33
First South Carolina Infantry.....	1,299	442	34
First Squadron Virginia Cavalry.....	710	86	12
Second Virginia Infantry.....	979	128	13
Fourth Virginia Infantry.....	968	202	21
First West Virginia Infantry.....	1,251	101	8
Second West Virginia Infantry.....	1,199	216	18
	45,184	12,068	29

Percentage of trials by summary courts.

Posts.	Average of enlisted strength present on last day of May and June.	Total number of trials by summary courts during May and June.	Percentage of trials by summary courts during May and June.
Fort McPherson	990	41	4.1
Fort Oglethorpe	9,662	234	2.4
Charleston, S. C., coast defenses of	859	9	1.0
Cape Fear, N. C., coast defenses of	495	15	3.0
Galveston, Tex., coast defenses of	566	27	4.7
Mobile, Ala., coast defenses of	470	25	5.3
Pennacola, Fla., coast defenses of	803	21	2.6
Savannah, Ga., coast defenses of	674	41	6.0
Tampa, Fla., coast defenses of	384	9	2.3
Jackson Barracks, La., defenses of	559	16	2.8
Key West Barracks, Fla.	299	9	3.0
NATIONAL GUARD.			
First Alabama Infantry	1,250	182	14.5
Second Alabama Infantry	985	40	4.0
Fourth Alabama Infantry	1,207	123	10.1
First Alabama Cavalry	1,367	10	.7
First Arkansas Infantry	1,203	72	5.1
First Georgia Infantry	1,222	132	10.8
Second Georgia Infantry	1,238	94	7.6
Fifth Georgia Infantry	1,220	78	6.3
Georgia Field Artillery, Battery A	129	7	5.4
Georgia Field Hospital	67	14	20.0
Florida Cavalry	440	9	2.0
Florida Infantry, First Separate Battalion	485	4	.9
First Louisiana Infantry	1,589	149	8.7
Louisiana Field Artillery	589	67	11.3
Louisiana Cavalry, First Separate Troop	85	11	13.0
First Mississippi Infantry	1,182	85	7.1
Second North Carolina Infantry	1,922	55	2.8
First South Carolina Infantry	1,436	67	4.6
First Tennessee Infantry	1,457	94	6.4
TOTALS FOR DEPARTMENT.			
Regular service	15,151	447	2.9
National Guard	19,068	1,293	6.7
Total	34,219	1,740	5.0

Trials by summary courts-martial.

Alabama Infantry	1	First North Dakota Infantry	3
First Arizona Infantry	1	First New Mexico Infantry	2
California Engineers	2	Oregon Field Artillery	14
First California Cavalry	6	Oregon Cavalry	3
Second California Infantry	50	Third Oregon Infantry	62
Fifth California Infantry	29	First Utah Cavalry	4
Seventh California Infantry	77	First Utah Field Hospital	2
Field Hospital, California	1	First Washington Cavalry	15
California Coast Artillery	10	Second Washington Infantry	203
Idaho Cavalry	10	Wyoming Infantry	22
Second Idaho Infantry	46		
Second Montana Infantry	23	Total	586

APPENDIX B.

Extracts from reports and recommendations of judge advocates of departments, tactical divisions, and other court-martial jurisdictions.

CENTRAL DEPARTMENT.

RECOMMENDATIONS.

1. The recommendation made heretofore that permanent clerks for The Judge Advocate Generals Department be established, is renewed. During the past year without fault of any one, lack of adequate clerical assistance has often seriously embarrassed the work of this office.

2. It is recommended that Congress be requested to amend the twenty-fifth article of war so as to permit the use of depositions in cases of desertion in time of war where the witnesses are across the seas from the place where the accused is in confinement awaiting trial.

3. That the forms given in the Manual for Courts-Martial, 1917, should be corrected so as to clearly indicate the rank and organization of the accused in the specification.

J. A. HULL,
Colonel, Judge Advocate.

SOUTHERN DEPARTMENT.

It is apparent from a consideration of the compilation of offenses, paragraph 4, that commanding officers do not make full use of the disciplinary punishments which they may impose without the intervention of courts-martial. It is noted that 3,178 cases in the Regular Army and 1,751 in the National Guard for violation of standing orders; 5,371 cases in the Regular Army and 3,880 in the National Guard for absence without leave; 2,368 cases in the Regular Army and 1,453 in the National Guard for failure to attend drill and roll calls, were brought to trial. While the data compiled does not show the exact nature of these offenses, experience in the past leads to the belief that many of these offenses were trivial, and that appropriate summary disciplinary action by the commanding officer is more effective as correction in most cases, than trials by courts-martial.

The use of the special courts-martial has somewhat increased, but there is great lack of uniformity in its use. In many organizations, particularly in the National Guard, few cases were tried before this court. In 1,224 cases tried, the sentences imposed in but 294 were in excess of the authorized limits of punishment which might have been imposed by summary court. It is believed that there is a general feeling in the service adverse to the trial of men and their possible sentencing to confinement for more than three months without the possibility of their separation from the service.

GEORGE M. DUNN,
Colonel, Judge Advocate.

EASTERN DEPARTMENT.

REMARKS.

1. Since the beginning of the present war the numbers of trials by general and summary courts-martial have increased greatly, and this notwithstanding the fact that this department is much smaller in area than it was before the war. The increase is due, in great part, to calling into active service a large number of organizations of the National Guard. But the increase in general court-martial cases is due also, in part, to the fact that cases under the fifty-eighth and eighty-sixth articles of war, which occur in time of war, must be disposed of by general court-martial. The number of cases under the eighty-sixth article of war, is notably large when a National Guard regiment is first engaged in guarding lines of communication, water supply, and manufacturing establishments. This appears, as I gather from examination of the records, to

have been due to several circumstances, among which are youth and inexperience of the offenders; overlooking and condoning of such offenses by immediate commanders in the early stages of service; and the excessive tours of guard at first required of the soldiers because of the small number of men available, which in turn was due, especially in guarding railways, to the large number of posts to be maintained. In each regiment, however, as soon as discipline begins to be more strictly enforced; when a number of offenders are tried and punished by court-martial; and when the number of men available for guard is increased so as to reduce the excessive tours of individuals, the number of offenders falls off in that regiment to a noticeable degree.

2. The calling into active service of so many National Guard organizations during the month of March and later and the organizing of courts for trial of cases arising therein came at a time when the new Articles of War had recently gone into effect. It was fortunate that the Manual for Courts-Martial, which went into effect at the same time, is so complete and comprehensive. There have, of course, been some delays and somewhat extensive correspondence growing out of carelessness or oversight in preparing charges, statements of evidence to be expected, and other matters; but wherever commanding officers and courts have intelligently consulted the manual the results have been highly satisfactory. The trials in most of the National Guard courts have been well conducted and the records well prepared. On the whole I do not recall a publication in connection with the administration of military justice which has been so practical and useful as the new Manual for Courts-Martial.

3. There have been a number of cases in the past year in which the delays in bringing the accused to trial has been very great. The delays have been, for the most part, in cases of desertion from the border when the securing of depositions was rendered difficult by shifting of troops; by return of organizations to their States; and by muster out; thus causing interrogatories to be delayed and in some cases lost. Owing to these and other delays a number of men in confinement under charges of desertion or other offenses, have been released under the provisions of the seventieth article of war. In all cases post commanders are instructed that the men so released are to be held on duty at the post and are subject to rearrest and trial. There have been a few cases in which men released have taken chances of recapture and increased punishment and have run away; but these are only instances of what may be expected by strict compliance with the law. In cases of serious crimes where there is delay there would be only one course to pursue in order to hold the men and at the same time to avoid disobedience of the law, and that is to formulate charges on perhaps incomplete information; serve them within 10 days; and although the evidence is still incomplete, arraign the accused before the expiration of 40 days and then continue the case on motion of the prosecution until necessary evidence is secured. To avoid this unsatisfactory state of the law the seventieth article of war might be amended so that the first sentence and the second, in part, will read somewhat as follows:

"Except in cases of capital or otherwise infamous crimes no person put in arrest shall be continued in confinement more than eight days or until such time as a court-martial can be assembled. When any person is put in arrest for the purpose of trial, for other than capital or otherwise infamous crimes, except at remote military posts or stations * * *."

4. Referring to paragraph 333, Manual for Courts-Martial, it is stated in last subparagraph thereof that the authority conferred by the one hundred and fourth article of war "must be exercised by the commander upon his own judgment and in strict compliance with the article and the regulation prescribed by the President pursuant thereto."

In the absence of regulation prescribed by the President the "strict compliance" here required might be taken to mean, *inter alia*, that no other than the disciplinary punishment named in the article may be imposed, and, perhaps, that the President could not prescribe regulations concerning disciplinary punishments other than those named therein nor authorize any others. It is regarded that the word "may" as used in connection with the punishments named is to be taken in its primary sense and not as a word of command, and that the *exclusio unius* rule does not apply. In this view it is believed that the commanding officer may allow a soldier who does not deny the commission of an offense which would ordinarily be disposed of by summary court, and who does not demand trial by court-martial, to make a deposit of pay in lieu of trial. Such disciplinary action would not amount to forfeiture of pay, which is forbidden. In cases where such action has been taken, and such cases were quite frequent in former times, I think experience has shown that it proved an effective measure in holding men in service and in deterring them from further dereliction. It is conceivable also that it might encourage the habit of saving. If the views above expressed meet with approval, and the matter be regarded as of sufficient importance to warrant the publication of a change in the manual, something as follows might meet the case:

"In addition to the disciplinary punishments named in the one hundred and fourth article of war, a commanding officer may, under the conditions prescribed therein allow a soldier, whose request in writing, to deposit a portion of his pay in lieu of trial."

Incidentally it is noticed that the article provides for disciplinary punishment for minor offenses when they are not denied. It has been suggested that a soldier may neither deny nor admit that he committed the offense charged. In such case it may be regarded that the situation is analogous to that of standing mute on trial; that therefore the accused in effect denies, and that trial instead of disciplinary punishment must be resorted to. In order to forestall doubt in this matter it might be well to add to the O. M. C. M. above suggested:

"In case a soldier charged with an offense ordinarily triable by summary court-martial neither acknowledges nor denies that he committed the offense charged, disciplinary punishment in lieu of trial will not be imposed."

4. I wish to call attention to the desirability of so amending section 2166 Revised Statutes as to provide for the naturalization of an alien soldier of the Regular Army who after three or four years, as the case may be, of active service is furloughed to the reserve. It is not thought necessary to go into detailed reasons for this recommendation. There have been two or three cases coming to knowledge of this office where alien soldiers have been under the impression that furlough to the reserve is equivalent to discharge, and have been disappointed when on applying to the courts they have been refused their citizenship. It seems that the change in the law may be easily made by amending it to read as follows:

"Any alien of the age of twenty-one years and upward, who has enlisted or may enlist in the armies of the United States, and has been or may be hereafter honorably discharged, and any alien who has enlisted or may enlist in the Regular Army, and has been or may be hereafter furloughed to the Regular Army Reserve, shall be admitted to become a citizen of the United States, upon his petition without any previous declaration of his intention to become such; and he shall not be required to prove more than one year's residence within the United States previous to his application to become such citizen; and the court admitting such alien shall, in addition to such proof of residence and good moral character, as now provided by law, be satisfied by competent proof of such person having been honorably discharged from the service of the United States or furloughed to the Regular Army Reserve."

F. L. DODDS,
Colonel, Judge Advocate.

PHILIPPINE DEPARTMENT.

Efforts have been made to reduce the unlawful disposition of clothing by soldiers by prosecuting in the civil courts that class of civilians (who are principally chinos) who make it a business to unlawfully traffic in soldiers' clothing in violation of the act passed by the Philippine Legislature last year. When considered necessary, the department judge advocate has assisted in the prosecution. The number of prosecutions before the courts during the past year have numbered about 15. It required a period of about 10 years to secure the passage of a law by the civil government that would punish the purchase of soldiers' clothing. The very first prosecution under the new law indicated that the Philippine bench did not consider the offense a serious one. Some sentences imposed by the civil courts have been quite mild, in some cases not exceeding P5. In order that the judges might see this matter in a different light this office prepared a memorandum on the subject, setting forth the history of the law in the United States, and reciting a number of the sentences that have been imposed by the United States courts. This memorandum was prepared with the idea that the prosecuting attorney should at an opportune time bring the contents to the attention of the judges of the courts of first instance. The result has apparently been productive of good, for there has been a proper increase in the severity of the sentence, so that the offenders are now coming to realize that a conviction is a very serious affair. It is hoped that during the coming year the beneficial effects of the law will become more manifest than they have been during the last year.

Section 9 of the Jones Act passed in August, 1916, provides:

"Where lands in the Philippine Islands have been or may be reserved for any public purpose of the United States, and, being no longer required for the purpose for which reserved, have been or may be, by order of the President, placed under the control of the government of said islands to be administered for the benefit of the inhabitants thereof, the order of the President shall be regarded as effectual to give the government of said islands full control and power to administer and dispose of such lands for the benefit of the inhabitants of said islands."

Under this provision the action of the President, taken in several instances prior to the passage of the act, in placing military reservations under the control of the civil government was legalized. Since the passage of the act a portion of the Fort William McKinley reservation has been placed under civil government control, and recommendation for similar action has been made as to 10 other reservations. During the past year the litigation relating to military reservations has diminished. At the present time there are but 10 titles being litigated, these affecting 5 reservations. Two of the five reservations have been recommended to be turned over to the control of the civil government.

The average period of time the accused has been in confinement under general court-martial charges before official action of the reviewing authority on the proceedings has been 32 days. This period is five days shorter than the similar period for the year ending June 30, 1916. The reasons for the undue length of this period are the same as those of last year, namely, the time required to transmit mail between the southern islands and Manila, and the absence of a sufficient number of competent stenographers to report proceedings of courts convened in the vicinity of Manila, and the additional reason that in several cases depositions had to be obtained from the United States. I apprehend that the difficulty of obtaining competent stenographers will increase during the coming year, but on the other hand two distant posts will cease to be occupied.

The disposition of the clerical work of department judge advocates' offices is still a problem by reason of insufficient clerical assistance. The use of charge sheets and the installation of the new filing system have greatly reduced that portion of the work connected with the recording of court-martial cases. The chief clerk of the office expresses the opinion that this reduction probably amounts to one-half. The other work connected with court-martial cases (which other work is by far the larger part) is not affected. This continues to be heavy. Under the present system of furnishing clerical assistance to Judge Advocates' Offices, Army field clerks are assigned from the department adjutant's office. If such assistance is insufficient, enlisted men are detailed. During my experience as judge advocate there have been only two occasions when it was not necessary to detail enlisted men for such service. The use of enlisted men is unsatisfactory because they usually come without much or any knowledge of clerical work, and also because they are subject to transfer from the department with their organization regardless of the needs of the office. It is probable every enlisted man in this office will leave within 30 days to return to the United States. This leaves this office quite stranded in a clerical way. If the present system, whereby army field clerks are detailed from the department adjutant's office, is continued, I strongly recommend that the number of field clerks be increased so that they will be able to render all the clerical service required. However, I am in favor of a separate corps of clerks for the department judge advocates' offices with a provision that in case the corps is unable to perform all the work by reason of sickness or other cause, the department commander shall assign temporary additional clerks from the department adjutant's office. The work in the department judge advocate's office has become so technical, special qualifications are required. Any corps of clerks for this office should include competent stenographers. Modern law offices are fully equipped with such assistance. This is particularly important on account of the large increase in that class of business which is not connected with court-martial work. This increase in recent years has been in quantity as well as in the importance of the questions considered. The increase in this department has been particularly marked during the past year by reason of the distance from the United States and questions connected with neutrality and belligerency.

Since the middle of August, 1915, a carbon copy of each opinion of the Judge Advocate General has been forwarded through the judge advocate of the Hawaiian Department to this office. Such of these as do not consist entirely of a discussion of facts and are of permanent value are filed in this office in separate file boxes according to the filing marks of the Judge Advocate General's Office. Particularly by reason of the frontier situation of this department, these opinions, rendered during a most important period of our history, and thus arranged in an orderly manner, have already become an exceedingly valuable repository of the law embodied in the opinions of the Judge Advocate General, and will rapidly increase in value in a very few years. Being kept in separate file boxes the entire lot could readily be transported to another station in case of need.

H. M. MORROW,
Lieut. Colonel, Judge Advocate.

PANAMA CANAL DEPARTMENT.

THE SOLDIERS' CLUB.

It has been the desire of commanding officers to do something to offset the evil influences of Panama City. In some of the more populated parts of the city almost every other house is a place where liquor is dispensed; the resorts of the restricted section of Cocoa Grove offer about the best (or worst) examples of human depravity, and cocaine and other habit-forming drugs can easily be procured. Native rum is exceedingly cheap and, of course, constitutes a great menace to soldiers. Gen. Edwards immediately on his arrival in January, 1915, began to plan for the establishment of an enlisted men's club. I visited the three Infantry regiments then on the Zone and talked with the officers and noncommissioned officers in regard to the establishment of such an institution. Options were obtained upon different buildings but a satisfactory building at a satisfactory price was not obtained until last fall. At that time the owner of the building known as the Casino offered the building at a reasonable rate. It was taken, the initial outlay being met by subscription (many Panamanians subscribing liberally) and theatricals.

The building is a large three-story structure in the eastern portion of Panama City, well lighted, set off by itself and tastily decorated with native plants. It presents an attractive appearance and stands as a monument to what is being done for the American soldier. At first, membership was by subscription, dues 25 cents per month. A selected committee of noncommissioned officers passed upon membership, and this committee was charged with the general duties of directors. One of the provost guard officers was placed in immediate charge, in addition to his other duties. Reading rooms were provided. A bar was established at which soft drinks, beer, and light wines could be obtained. Near the building was a large amphitheater capable of seating several thousand, which was placed at the disposal of the club for sparring exhibitions.

Rates for beds and restaurant charges were made low so as to draw soldiers to the club away from the dives, brothels, and low-grade sleeping houses in the city. The club at once became a success. It was found that the dues could be dispensed with; this was done and any soldier, cleanly dressed and sober, becomes eligible to the privileges of the club. Dances every two weeks were inaugurated and these are now attended by the noncommissioned officers and soldiers with their wives and families and by a great number of civilians. Sparring matches were started, gloves being used so that the main objectionable features of prize-fights were eliminated. Soldiers are not allowed to spar with civilians.

Sobriety and decency have marked the club since its inception. The soldiers take pride in the institution as now they have a place in the city of Panama, respectable and inviting, to which they can resort. As to the effect of this club upon the discipline I call attention to the following: For the quarter, July to September, 1916, the summary court trials at the provost guard camp, where nearly all offenders in Panama City are tried, were 318. The club was started October 1. For the quarter October to December, 1916, the summary court trials numbered 229. For the quarter, January to March, 1917, 175; for the quarter, April to June, 1917, 55. This reduction is nothing short of remarkable. While absences in the field for the quarter January to March had some influence in the reduction, and the war had much to do with the reduction for the quarter April to June; yet I am safe in concluding that 50 per cent of the reduction of trials is due to the club.

The club has answered well its object, giving to enlisted men a decent and reputable place to which they may resort. Such places of course do not exist in Panama short of moving-picture theaters, and a very few of the better class of saloons; and as for the latter, no restriction is placed upon the sale of whiskey and other even more objectionable liquors such as cheap rum. That the club is not interdicted by the recent act of Congress relating to the purchase and sale of liquors is explained in a memorandum submitted this day to the department commander, a copy of which is inclosed.

THE NEW ARTICLES OF WAR AND MANUAL.

I am surprised at the small number of errors arising in passing from the old to the new Articles of War, and from the introduction of the new Manual. I attribute this largely to the excellent arrangement and conciseness of the new code and to the clearness of the Manual. I have found almost no errors due to the change. The service has adopted the new with no jar whatever. It is fortunate at this time that we are so well equipped with a clear military code and such an excellent Manual of procedure.

WAR PUNISHMENTS.

Several of the departments furnish these headquarters with copies of general court-martial orders. As they are received from time to time, I go over them carefully with the idea of seeing if uniformity of punishment exists throughout the service. I found no occasion for comment until the outbreak of the war. Then I found that the serious offenses of sleeping on post and desertion were in some jurisdictions being met by absurdly light punishment. I felt it necessary to comment upon this subject which I did in a letter of June 1, 1917, a copy of which is inclosed. Upon this letter the commanding general placed an indorsement, stating his concurrence in my opinion, and explaining the measures he had taken to prevent the offense of sleeping on post in this jurisdiction. It will be noticed that in my letter I recommend that this matter be brought to the attention of the officer in charge of the disciplinary desk of the Judge Advocate General's Office. I desire to reiterate my views in regard to the serious mistake that is being made in some jurisdictions by imposing absurdly light punishment for war offenses.

HERBERT A. WHITE,
Lieut. Colonel, Judge Advocate.

PUNITIVE EXPEDITION TO MEXICO.

Some novel points of law were raised, and an effort was made to meet every contingency as it occurred, basing action on facts and such references as were available. In no case, it is believed, was any injustice done; and in no case was there any delay in action beyond that necessary for sound and careful consideration. In a murder case originating December 27, 1916, conviction was secured after full and fair trial and the convicted murderer began a life sentence January 26, 1917, less than one month after commission of his crime, at a cost to the Government of less than \$50. Comparison with similar cases in municipal courts is invited. This case is a fair example of the work done under this office.

The only recommendation that I care to make is that decent pay be allowed to enlisted men who are used as reporters for general courts-martial, and as clerks for Judge Advocates. The present allowances for this sort of work by these men are disgraceful.

My office handled a volume of work equal to that of any two ordinary departments in time of peace, with only one enlisted man as clerk, and he received the pay of a private for doing the technical work that would require three or four clerks in time of peace in the office of a regular Judge Advocate.

Having been once a candidate for permanent appointment as judge advocate, it has been a pleasure to perform this duty under the peculiar circumstances of the punitive expedition, where the greatest volume of business under the most novel conditions was to be done. If it stands the critical scrutiny of peace conditions and leisurely examination my former ambition for that appointment will have been peculiarly justified. If it fails under such scrutiny, the failure must be ascribed to lack of capacity and training, not to lack of application and industry.

JOHN H. PARKER,
Acting Judge Advocate.

NORTHEASTERN DEPARTMENT.

Personnel.—The undersigned was assigned as judge advocate of this department by paragraph 58, Special Orders, No. 89, War Department, April 18, 1917, and reported for duty on May 1. Maj. Edward K. Masee, judge advocate, was assigned by paragraph 20, Special Orders, No. 146, War Department, June 25, 1917, as assistant judge advocate, and has joined since the end of the fiscal year. Maj. Eugene Wambaugh, judge advocate's section, Officers' Reserve Corps, was assigned to duty in this office by paragraph 75, Special Orders, No. 153, War Department, July 3, 1917, and reported for duty on July 9. Maj. Frederic G. Bauer, judge advocate's section, Officers' Reserve Corps, was assigned to duty in this office by paragraph 61, Special Orders, No. 165, War Department, July 18, 1917, and reported for duty on July 25. Mr. W. H. Bush who had been on duty in the office of the judge advocate, Eastern Department, was assigned as chief clerk, but was soon after relieved in order to accompany the expeditionary forces abroad. The present personnel of the office consists of four Army field clerks and one orderly messenger. The embarrassment, due to the control of the clerks in the office of the department judge advocate by another office, was well exemplified by the orders relieving Mr. Bush. I first learned of his relief through a telegram which he received personally at a time when a clerical force had not been secured, leaving me with practically no assistance. The system under which the clerks

in the department judge advocate's office are selected and controlled does not work any more satisfactorily than a system would whereby The Adjutant General of the Army would be authorized to select, assign, and promote the clerks in the Judge Advocate General's Office in Washington. The present system prevents any possibility of educating clerks by department judge advocates for use in field service, because they have no assurance that they would be assigned to such duty. It is hoped that the exigency of war will serve to remove permanently such an anomalous condition of affairs.

The new Manual for Courts-Martial appears to have given general satisfaction, and its arrangement has been generally commended. Difficulty has been experienced, however, regarding its distribution. Many regular officers have informed me that they have never received copies. One National Guard regiment was able to secure but one copy through a Congressman. I have, myself, seen it displayed for sale in the Students' Cooperative Store at Harvard University, and I am informed that it can be purchased from many bookstores in New York City. Much additional labor would have been avoided had it been promptly distributed.

Some difficulty has been experienced in this department in securing competent reporters for general courts-martial, and upon investigation I find that reporters are very loath to accept court-martial work because the rate of compensation for reporting at courts-martial is very much less than that received by them for outside work. The Navy pays regular civilian rates and has no difficulty. I am informed that the usual pay for outside work done by court reporters in this locality is \$10 per diem, or \$5 for one-half a day, 25 cents per folio for first copy, and 5 cents for each carbon, whereas the rate of compensation for Army courts-martial is \$1 per hour and 15 cents for the original and first carbon copy of the record. As will be seen, reporting for courts-martial is but slightly more than one-half as remunerative as reporting for municipal courts or Navy courts-martial.

Advice has been received that, beginning with the new fiscal year, the opinions of the Judge Advocate General's Office will be furnished to all officers of the department, and to each judge advocate's office. This is an excellent arrangement, but it will not accomplish fully the results its importance merits unless a filing system is furnished each officer so that all offices may have exactly the same filing system, which system should be identical with that used in the office of the Judge Advocate General. This means, therefore, that these opinions should be furnished in duplicate on separate sheets of paper, bearing the same filing numbers as those used in the head office. Opinions are of value only when they can be referred to for precedents, and if each judge advocate is compelled to create a filing system of his own, anyone else will have difficulty in using it, and the purpose in furnishing these opinions will be defeated.

Considerable difficulty has been experienced in starting a new office due to lack of library facilities, but through the courtesy of the United States district attorney this office has been accorded the use of the Social Law Library. The contingent fund at these headquarters was only sufficient to provide for the purchase of the Statutes of the United States and a few other very important books. A requisition is in course of preparation for a small library which will meet the needs of a department judge advocate's office. This will be forwarded shortly with a request that authority be granted the department quartermaster to purchase these books from the appropriation for incidental expenses, which appropriation embraces an item for professional books.

I. L. HUNT,
Major, Judge Advocate.

SOUTHEASTERN DEPARTMENT.

SPECIAL INVESTIGATIONS.

The attention of the department commander was particularly called during the month of June to the exceedingly large number of trials by general courts-martial in two National Guard regiments involving capital offenses of sleeping on post and leaving post. It was quite apparent to this office that there existed in these commands a degree of informality in posting sentinels, and in relieving them, not conducive to a satisfactory performance of guard duty by isolated detachments removed necessarily by the exigencies of the service from the proper supervision of commissioned officers. The department commander's action in directing a thorough investigation and appropriate remedial action in these commands resulted in an appreciable decrease during the last portion of the period covered by this report in the number of cases of this nature in these commands.

KYLE RUCKER,
Major, Judge Advocate.

UNITED STATES DISCIPLINARY BARRACKS.

As a rule two courts, each consisting of six members, a trial judge advocate, an assistant trial judge advocate and a counsel have been in session on alternate days and have disposed of from two or three to as high as fifteen cases per day; one court, consisting of 12 members with a trial judge advocate and a counsel, has tried the more serious cases. The members of these courts can not be commended too highly for the zeal and efficiency with which they have discharged their rather burdensome duties. Their capability is evidenced by the fact that it has been necessary to return but one case for revision.

With the system for handling general court-martial cases now in use at this institution, I see no reason why such cases should not be disposed of far more efficiently here than they usually are at other places in the service. The reasons for this belief are as follows:

(a) The delay in forwarding the charges to department headquarters and the possible further delay in convening a court and referring the charges to the same, is greatly minimized by sending the accused and his charges here for trial.

(b) The personnel of the courts at this institution is such that these experienced officers can work with greater speed and efficiency than inexperienced officers who have a multitude of other duties, the performance of which interferes more or less with court-martial duty. Here, court-martial duty is a regular duty for an officer about three afternoons a week; at other places it is an unusual duty and looked upon as extra work.

(c) The services of Maj. King, in the examination of the accused, and his recommendation made as a result of such examination, are of estimable value in determining the proper scientific punishment of offenders against military law. The intelligent application of punishment is of the greatest value in maintaining discipline in the service, and punishment can not be scientifically administered unless proper psychiatric examination be made of the offender and acted upon by the reviewing authority. To my knowledge this is the only place in the service where such examination is made before trial.

(d) With the court and the reviewing authority under the same roof very prompt action can be had upon trials and the usual delay in sending the records of trial to department headquarters is entirely done away with.

The same situation—the court and the reviewing authority under the same roof—makes practicable a simplified system for handling correspondence and records that is impossible under other conditions. For example: The reviewing authority is daily in touch with the business before all courts-martial appointed by him. This renders unnecessary the weekly reports of trial judge advocates required by paragraph 104, Manual for Courts-Martial, likewise many matters that ordinarily require written communication between trial judge advocates and the reviewing authority are disposed of orally. The "court and charges record," to which so much time is given and upon which so much work is done in department judge advocates' offices, is of no advantage at this place. No record whatever is made in this office of letters, telegrams, and other papers received in regard to a case while it is before a court, except those that must be returned or transmitted to some other office or person away from this station. The reason is obvious, as the original papers, whether acted on by the commandant, filed in the judge advocate's office, or turned over to the trial judge advocate, are available at all times.

Some of these practices do not conform to the instructions of the War Department to department and division judge advocates, but nothing is lost by these innovations, and much is gained, as they aid materially in expediting trials by permitting papers to be handled through this office more rapidly, by relieving trial judge advocates of much correspondence, and by effecting a marked reduction in the amount of clerical work necessary to run this office.

I recommend that paragraph 5, letter of instructions of the Adjutant General of the Army, dated December 29, 1916, relative to trials of alleged deserters, be amended to include, in addition to desertion cases, all serious noncapital cases arising in the Central and Southern Departments. Such action would materially reduce work at department headquarters, expedite trials, make a considerable saving in time and money, allow officers on duty with troops more time for training same, and probably result in a more uniform and scientifically applied punishment.

GEO. V. STRONG, Major, Judge Advocate.

CHINA EXPEDITION.

The percentage of trials in this command has fallen from 88 per cent for the year 1916 to 57.16 per cent for the year 1917, while this percentage is still high in comparison with other commands it should be remembered that the conditions surrounding enlisted men at this place are very unsatisfactory. The restraining influence of decent women is entirely lacking. The prostitutes found here are of the lowest type imaginable, always dirty, and usually diseased. Every little native shop sells liquor at less than one-half the price asked in the United States, and many of these shops also sell cocaine. All these conditions being under foreign administration are entirely without the control of the commanding officer. The commanding officer has, however, secured the cooperation of the police departments of the various concessions in having a medical inspection of the women in the red light districts. It is hoped that this will greatly reduce the venereal list.

To offset these conditions an enlisted man's club has been established, with every modern convenience, and all the accessories of a first-class club. An excellent restaurant is run in connection with the club, but no liquor is allowed on the premises. The dues are low (\$1 gold per month), but the entire club is self-supporting. While it has only been in operation a few months the effect on the command has been very good.

On June 8, 1916, the commanding officer, China expedition, was given authority to take final action on boards convened under paragraph 148½, Army Regulations. This grant of authority has produced excellent results in this command, and the greatest care has been exercised to see that no injustice is done thereunder. It has practically displaced the general court-martial in all cases of men who would otherwise be tried and dishonorably discharged on account of five previous convictions. Only one such case appears during the present year.

Paragraph 162½, Army Regulations (C. A. R. No. 55), requires the "Report of board of officers in case of death of soldier from other than natural causes. * * *". The one hundredth and thirteenth Article of War reads as follows: "When at any post, fort, camp, or other place garrisoned by the military forces of the United States and under the exclusive jurisdiction of the United States, any person shall have been found dead under circumstances which appear to require investigation, the commanding officer will designate and direct a summary court-martial to investigate the circumstances attending the death; * * *". Both the board of officers and the summary court-martial are required to take and record the testimony of witnesses. While these provisions are not in conflict they result in much duplication of labor, and it would appear that by requiring the summary court-martial to embody in its finding the statements required for the board of officers the latter might be eliminated.

WM. S. WEEKS,
Major, Judge Advocate.

HAWAIIAN DEPARTMENT.

REMARKS AND RECOMMENDATIONS.

1. The carrying out of the policy suggested in memorandum orders of March 30, 1916, these headquarters, has resulted in no dishonorable discharge because of five previous convictions during the period of this report; and it has in the same period resulted in the permanent separation from the service, under the provisions of paragraph 148½ A. R., as amended, of 114 undesirables from the following causes:

Inaptitude.....	19
Habits.....	45
Traits of character.....	25
Habits and traits of character.....	25

2. Forty-one of those dishonorably discharged were sentenced for refusing to take mercurial treatment for syphilis. These refusals, which occurred between July 17 and October 9, 1916, were confined almost wholly to Schofield Barracks, where they became so numerous as to require a change from the policy of giving dishonorable discharge without confinement, to that of giving dishonorable discharge and confinement at hard labor for one year. Indeed it seemed imperative that no suspension of dishonorable discharge be ordered for fear that the lessened punishment might not deter men from committing this offense. In time of peace the maximum punishment should permit confinement at hard labor for at least one year for this offense. These men need not be lost to the service for there is no objection to their restoration to duty

in this department if syphilis has been eradicated from their systems or if they have, since leaving this department, received adequate treatment for the control of syphilis and there is reason to believe that they will continue such treatment without obstruction. Otherwise they are not wanted in this department.

3. No National Guard men have been in Federal service during the past year in this department.

4. As the opinion reading "The new manual for courts martial has elicited universal commendation; appearing as it does, in time for use as the first text book in its field by the large body of new officers recently commissioned, its great merit is the more valuable," is unchanged after four months' trial; and as the new articles of war have disclosed no defects in practice; and as the entire military system is being taxed by problems of great magnitude, it is deemed inadvisable to suggest any change until after the experience of the next few months shall have shown it to be imperative.

JAMES A. GALLOGLY,
Major, Judge Advocate.

THIRTEENTH PROVISIONAL DIVISION.

The bulk of the work of the division was handled under the old Articles of War. Many of the errors and omissions on the part of those responsible of the administration of justice in the division may perhaps be laid to lack of a handy manual. With the new code and the manual now in force, it is believed the irregularities and delays should be much reduced.

Among the things which were particularly and unfavorably noted may be mentioned the slowness in forwarding charges and dilatoriness in trial of cases that had been referred to courts; a constant tendency to excuse crimes of dishonesty on the grounds of the youth and inexperience of the offender; and the inequality of punishments awarded in neighboring organizations. In many regiments men were brought to trial by general court-martial with great reluctance; theft, desertion, forgery and other serious crimes were tried by inferior courts. Trials by special courts-martial were not had as frequently as circumstances would seem to have warranted. The amount of clerical work necessitated by faulty records and tardy or incorrect action on the part of the courts was very considerable.

E. V. D. MURPHY.
Captain, Acting Judge Advocate.

THIRD PROVISIONAL INFANTRY DIVISION.

It is believed that a book with the necessary blank forms for keeping data for annual reports should be published and furnished to division judge advocates. Under the present method of compiling this data a good deal of trouble and inconvenience is caused. With the great amount of court-martial business that was found in the divisions organized in the Southern Department and due to the inexperience and frequent changes of clerks, a great amount of delay and hardship resulted in the preparation of annual reports.

M. A. PALEN,
Captain, Acting Judge Advocate.

TWELFTH PROVISIONAL DIVISION.

It is my opinion that all trials of National Guardsmen by National Guard courts have been a travesty upon justice. The courts invariably reflected the attitude toward crime as is shown by a jury in civil life. They were unable to disabuse their minds of the fact that the mitigating power in military tribunals rests with the reviewing authority, and not with the court or jury, as is the practice in civil tribunals; they lost sight of the object of trials which is the maintenance of discipline, and kept in mind the effect that a sentence would have upon the accused when he returned home and took up his civil pursuits.

In many cases the courts entirely ignored the evidence presented, and found the accused not guilty; in these cases it was necessary to return the case to the courts several times for revision and practically compel them to make a finding on the evidence.

It is the opinion of this office that in many cases the witnesses were fixed by counsel or by friends of the accused. This can not be established, but it could generally be inferred from the attitude of the witnesses, called by both the prosecution and defense.

In the trial of at least six officers, tried in the division, it is practically certain that the witnesses for the prosecution were bribed or were induced to leave the jurisdiction of the court. The circumstances surrounding these cases look very suspicious.

The trials before National Guard courts were, without an exception, very poorly conducted, although it was the rule of this office to select as judge advocate and president of the court officers who had legal training, in the hope that their experience in civil courts would enable them to conduct a military court properly and keep out of the record irrelevant and immaterial testimony, which was a very common thing, as a rule, in trials by National Guard courts. The presidents and judge advocates of National Guard courts were repeatedly cautioned to observe the rules of evidence in their trials, but as a rule they seemed to be unable to carry out their instructions.

An examination of the accounts for reporters' fees indicates that the average cost per trial of cases tried by National Guard courts was \$17.35, while that of the regular courts was about \$8.45. Trials by National Guard courts may be considered very expensive, considering them from a financial point of view, and from the results obtained.

The average period of time the accused were in confinement before final action of the reviewing authority in the case of National Guardsmen was 1 month and 25 days; in the case of Regulars, 1 month and 5 days. The average time, however, toward the latter part of the existence of the 12th Provisional Division was from 7 to 15 days. The unusual length of time required by the National Guard was due to the fact that they were slow in preferring charges; the accused in many cases remaining in confinement as much as two or three months before charges were preferred; this was especially true of National Guard regiments that joined the division from the border and from mobilization camps during the last few months.

The high percentage of crime observed in the National Guard organizations as compared with the Regular troops, in my opinion, is not due to a lower character of men as compared to the Regulars but a lack of experience on the part of the officers in the matter of company administration and maintaining discipline. The number of trials by a regiment, as a rule, reflected the efficiency of its officers.

M. A. PALEN,
Captain, Acting Judge Advocate.

UNITED STATES MILITARY ACADEMY.

The frequency of trials by court-martial in this command is largely due to the impracticability of awarding company punishment. Since the men of this command are kept at ordinary military and routine duties from early in the morning until 4 o'clock in the afternoon, the only time when they can be assigned to extra fatigue as company punishment is Sundays and holidays. Therefore, many of the cases which at other posts could be disposed of by company punishment necessarily result in summary court trials on this post.

B. D. EDWARDS,
Captain, Acting Judge Advocate.

REPORT OF THE QUARTERMASTER GENERAL.

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REPORT OF THE QUARTERMASTER GENERAL.

WAR DEPARTMENT,
OFFICE OF THE QUARTERMASTER GENERAL OF THE ARMY,
Washington, September 22, 1917.

The SECRETARY OF WAR.

SIR: I have the honor to submit the annual report of the operations of the Quartermaster Corps for the fiscal year ended June 30, 1917.

FINANCE AND ACCOUNTING.

Apportionments.—Consolidated financial statement, fiscal year ended June 30, 1917. (Exhibit No. 1.)

Detailed expenditures of the Quartermaster Corps for the fiscal year ended June 30, 1917, itemized under different appropriations.

	1917	1916-17 (Army act).	1917-18 (Act of June 15, 1917).
Supplies, services, and transportation:			
Adding machines.....	\$16,354.76		
Advertising.....	4,375.07	\$4.50	\$1,303.30
Annual repairs (water and sewers).....	67,261.78	17.49	
Appliances for cooking and serving food at posts....	26,997.95		
Army transport service—			
Class A, supplies.....	219,167.75		
Class D, supplies.....	41,549.51		
Fuel.....	398,298.04		
Water, laundry, pilots, etc.....	206,661.23		
Repairs.....	370,715.78		
Autos and trucks—			
Maintenance, operation, and repair.....	207,159.18	336.97	
Hire of.....	1,901.21		
Purchase.....	1,370,275.67		
Bake ovens and apparatus, purchase and construction.....	9,272.84		
Bake ovens, repair of.....	5,239.40		
Band instruments.....	343,695.70		445,292.71
Blacksmiths' coal and charcoal.....	6,612.56		
Caring for post cemeteries.....	2,924.97		
Class I, civilian employees.....	4,537,035.87	151,067.16	1,621,278.87
Civilian outer clothing.....	30,670.00		
Class A—			
Central Department.....	362,787.78		
Eastern Department.....	1,190,158.95		
Hawaiian Department.....	173,645.73		
Southern Department.....	2,514,086.78		
Western Department.....	295,857.54		
Depots, independent stations, etc.....	2,729,135.04	43,532.30	
Class A-1—			
Depot stock.....	13,012,344.96		
Local purchases, etc.....	13,873,093.37	679,722.81	
Class D—			
Administrative branch.....	10,409.63		
Construction and repair branch.....	121,365.74	12,357.83	
Harbor boats.....	21,643.82		
Supplies division.....	78,545.80	3,333.24	
Transportation division.....	55,345.90		
Class II—			
Central Department.....	\$11,400.18		
Eastern Department.....	26,541.79		
Hawaiian Department.....	16,031.11		

Detailed expenditures of the Quartermaster Corps for the fiscal year ended June 30, 1917, itemized under different appropriations—Continued.

	1917	1916-17 (Army act).	1917-18 (Act of June 15, 1917).
Supplies, services, and transportation—Continued.			
Class 11—Continued.			
Southern Department.....	\$80,943.89		
Western Department.....	30,432.68		
Depots, independent stations, etc.....	36,107.47		
Altering, fitting, washing, etc.....	23,000.53		\$166.28
Class IV—			
General (incidental expenses).....	9.80		
Construction and repair division.....	13,271.95	\$2,278.86	
Supplies division.....	5,387.93		
Transportation division.....	4,197.05		
Cold storage.....	3,240.00		
Contracts, clothing and equipment.....	14,833,798.18	2,556,232.27	225,339,689.57
Deserters, apprehension of.....	151,255.39		500.00
Donations to prisoners.....	17,170.00		5.00
Draft and pack animals.....	20,630.30	59,000.00	1,648,192.50
Drayage.....	43,065.62		
Extra duty.....	6,543.25		
Instruction cooks at cooks' and bakers' schools.....	8,805.50		
Mess stewards and cooks at recruit depots.....	10,744.50		
Pay for school teachers.....	5,120.75		
United States disciplinary barracks' guard.....	38,452.75		
Fences—			
Construction of.....	11,942.50		
Repair of.....	5,348.50		
Field bakeries.....	1,261.48		
Field ranges, purchase of.....	2,293.00		
Fire-alarm systems, repair of.....	252.65	90.00	
Fire apparatus, purchase of.....	19,120.71	99,137.16	
Fire apparatus, repair of.....	11,875.95		
Forage.....	8,179,104.40		46,424.00
Fuel.....	2,948,917.66		7,017.44
Fuel for harbor boats.....	240,137.94		
Fuel for incinerators.....	20,587.00		
Fuel for pumping plants.....	129,884.50		
Garbage, disposal of.....	18,018.50		7,700.00
Harbor boats—			
Hire or charter of.....	55,695.40		
Repair of.....	181,899.71		
Water, laundry, etc., harbor boats.....	17,774.34		
Hauling at posts.....	45,487.04		
Classes B and 3, heating apparatus, repairs and maintenance.....	48,146.08		
Heating apparatus—			
Installed in connection with new construction.....	20,211.06		
Renewals and new installation other than in connection with new building.....	105,944.62	15.00	
Heat, purchase, rentals, including recruiting stations.....	55,644.81		
Ice machines, maintenance of.....	3,242.00		
Incandescent lamps.....	42,609.49		
Laundries—			
Construction.....	95.00		
Operation and maintenance.....	9.36		
Repair of.....	1,172.20		
Lighting fixtures, installation in connection with new construction.....	19,781.17		
Lighting plants—			
Annual repairs and maintenance.....	49,852.66		
Installation and extension of lighting systems.....	29,896.68	9,926.00	
Light, purchase, rentals, including recruiting stations.....	427,750.07		
Militia, Federal service.....	11,861,922.16	586,040.28	
Mineral oil.....	56,646.73		
Movement into Mexico.....	14,707,547.42	53,299.54	
Other vessels (artillery), purchase of.....	40,494.70	40,000.00	
Packing materials.....	256,142.58		17,631.29
Pay for clothing not drawn due enlisted men on discharge.....	1,065,455.64		
Plumbing in new buildings.....	35,913.61	36,496.69	
Repairs to plumbing within buildings.....	89,764.95	12,848.95	
Post bakeries—			
Construction.....	1,786.80		
Repair of.....	4,802.27		
Precautionary measures.....	13,275,378.41	4,046.00	
Printing.....	281,105.45		306.78
Prizes for graduates from Army schools for bakers and cooks.....	700.00		
Projects.....	\$96,197.18	\$64,063.75	
Purchase of water.....	339,053.28	13,815.50	\$299.37
Railroad equipment—			
Operation and maintenance.....	4,577.00		
Purchase of.....	75,848.50		
Recruiting.....	394,921.09	200,000.00	5,068.98

*Detailed expenditures of the Quartermaster Corps for the fiscal year ended June 30, 1917,
itemized under different appropriations—Continued.*

	1917	1916-17 (Army act).	1917-18 (Act of June 15, 1917).
Supplies, services, and transportation—Continued.			
Reimbursement of traveling expenses—			
Civil employees.....	\$102,444.12		\$3,701.98
Newly appointed cadets.....	5,992.74		
Reserve stock, etc.....	220,552.21		
Seeds, implements, etc.....	14,088.76		
Shoeing animals.....	11,468.58		
Sterilizers, incinerators, etc.....	288.97	\$270.00	
Subscriptions to newspapers and periodicals, etc.....	6,773.62		
Technical books.....	1,340.08		
Telegrams and cablegrams.....	209,469.31		
Telephones, rental of, except for recruiting stations and artillery posts.....	40,679.48		
Tent floors and screens.....	247,000.00		
Toilet articles.....	172,980.76		30,228.20
Transportation accounts.....	6,396,401.97	728,178.59	19,761,355.92
Travel allowances, discharged enlisted men.....	1,145,642.33		
Typewriters, purchase of.....	157,094.08		
Wharfage and rentals.....	50,786.77		
Mobilization camps.....		6,622.83	
Army transports, maintenance and operation.....			23,959.95
Automobiles and trucks, purchase, maintenance, and operation.....			1,137,350.03
Cantonment construction.....			2,755,171.41
Class A.....			11,814,276.81
Heat and light.....			408.31
Harbor boats, maintenance and operation.....			32,221.58
Miscellaneous supplies and services—			
Administrative division.....			500.00
Construction and repairs division.....			60,654.96
Supplies division.....			17,427.41
Transportation division.....			4,489.40
New installations, construction and extensions.....			436,243.70
Maintenance, operation, and current repairs.....			28,131.67
Subsistence.....			7,308,981.75
Telephones.....			1,043.19
Vessels, other than transports, purchase and hire.....			419,260.00
Field bakeries and ranges.....			209,923.71
Total.....	121,755,918.96	5,392,743.72	273,276,226.07
Pay, etc., of the Army.....	83,304,391.68		16,275,400.00
Additional clerks in the field.....	48,700.00		
Total.....	83,353,091.68		16,275,400.00
Mileage to officers, etc.....	796,553.97		15,000.00
Horses for Cavalry, Artillery, Engineers, etc.:			
Advertising.....	39.90		
Expenses incident to purchase, other than for ad- vertising.....	1,630.75		
Purchase of horses.....	2,385,004.04		
Class I, personal, civilian employees.....	36,266.67		
Movement into Mexico.....	840.00		
Total.....	2,423,781.36		
Barracks and quarters:			
Civilian employees.....	80,893.40		70.00
Advertising.....	254.56		
Annual rentals other than of recruiting stations.....	279,516.39		10,770.68
Rental of recruiting stations and lodgings.....	282,393.15		977.35
Annual repairs, Classes B and 3.....	613,305.95		
Furniture.....	51,963.10		
Militia, Federal service.....	1,039,107.97		
Movement into Mexico.....	1,270,222.15		
New construction.....	58,472.09		
New construction of minor character.....	1,734,913.43		
Precautionary measures.....	35,570.71		
Refrigerators.....	22,061.88		
Screens, storm doors, etc.....	15,560.78		
Special repairs and alterations, replacing damage by fire, etc.....	190,588.10		
Temporary shelter, Canal Zone.....	110,000.00		
Cantonment construction.....			7,556,330.00
Construction.....			1,194,653.88
Ice boxes.....			3,444.29
Miscellaneous supplies and services.....			23,634.10
Repairs.....			51,921.89
Total.....	5,784,813.66		8,841,802.19

Detailed expenditures of the Quartermaster Corps for the fiscal year ended June 30, 1917, itemized under different appropriations—Continued.

	1917	1916-17 (Army act).	1917-18 (Act of June 15, 1917).
Military post exchanges:			
Construction.....	\$37.05		
Equipment.....	16,365.44		
Maintenance.....	14,211.24		
Militia, Federal service.....	90.67		
Movement into Mexico.....	977.75		
Supplies, etc., for moving-picture machines.....	7,860.89		
Construction, equipment, and maintenance.....			\$4,448.00
Total	89,573.04		4,448.00
Roads, walks, wharves, and drainage:			
Advertising.....	180.54		
Care and improvement of grounds.....	47,462.97		5,000.00
Class I personal, civilian employees.....	4,550.00		
Drainage—			
Construction.....	21,006.63		
Repairs.....	18,661.70		
Dredging channels.....	10,214.00		
Militia, Federal service.....	60,322.84		
Movement into Mexico.....	29,024.06		
Precautionary measures.....	42.60		
Roads—			
Construction of, contract.....	222,962.54		
Repair of.....	163,874.68		
Walks—			
Construction of, contract.....	10,956.90		
Repair of.....	22,772.00		
Cantonment construction.....			389,200.00
Construction.....			106,625.20
Wharves—			
Construction of.....	64,821.10		
Repair of.....	56,652.57		
Repairs.....			39,708.57
Total	783,505.13		542,823.77
Construction and repair of hospitals:			
Advertising.....	52.90		
Construction and repair.....	187,313.26		275,565.15
Militia, Federal service.....	264,999.68		
Movement into Mexico.....	1,890.93		
Precautionary measures.....	70.00		
Cantonment construction.....			174,825.00
Total	\$454,326.77		450,390.15
Hospital steward's quarters:			
Repairs, etc.....	13,249.08		
Shooting galleries and ranges:			
Construction of ranges.....	27,043.60		
Militia, Federal service.....	16,747.66		
Movement into Mexico.....	9,875.04		
Repairs, etc.....	10,769.39		
Total	64,435.69		
Maintenance of Army War College:			
Civilian employees.....	6,062.77		
Fuel, purchase of.....	3,109.00		
Light, purchase of.....	1,100.00		
Total	10,271.77		
Pay of Military Academy.....	806,115.54		
Rent of buildings, Quartermaster Department, District of Columbia.....	38,720.42		
Sundry appropriations:			
Disposition of remains of officers, soldiers, civilian employees, etc., Philippine Islands allotment (\$14,000 not included).....	84,463.79		
Land for aviation purposes.....	300,000.00		
National cemeteries.....	118,620.61		
Pay of superintendents of national cemeteries.....	63,120.00		
Ranges for field artillery target practice, National Guard.....	163,950.80		
Sewerage system, Fort Monroe, Va.....	9,356.99		
Support of dependent families of enlisted men.....	6,249,788.33		

DEFICIENCY ACT, 1916-17.

Pay, etc., of the Army.....	\$768,081.37
Pay, etc., of the Militia, Federal service.....	714,230.02
Mileage to officers, etc.....	6,500.00
Supplies, services, and transportation:	
Movement into Mexico.....	147,632.39
Reimbursement of traveling expenses, newly appointed cadets.....	5,264.12
Transportation accounts.....	1,365,076.47
Horses for Cavalry, Artillery, Engineers, etc.:	
Purchase of horses.....	1,884,713.00
Barracks and quarters:	
Supplies destroyed by fire.....	500.00
Militia, Federal service.....	9,583.83
Movement into Mexico.....	5,000.00
Rentals.....	2,926.33
New construction.....	48.40
Screens, storm doors, etc.....	80.09
Special repairs, alterations, etc.....	26,112.39
Construction and repair of hospitals.....	97,079.66

Statement of account with the department quartermaster, Philippine Department, Manila, P. I., fiscal year, 1917.

Appropriation.	Amount apportioned.	Apportionment funds remitted.	Funds remitted due on account of sales, Treasury settlements, etc.	Funds expended in the United States.	Total remitted and expended in United States, exclusive of amounts indicated in column 3.
Pay, etc., of the Army.....	\$6,775,000.00	\$6,775,000.00	.....	.....	\$6,775,000.00
Mileage to officers and contract surgeons.....	16,891.31	16,891.31	.....	.....	16,891.31
Supplies, services, and transportation, Quartermaster Corps.....	5,999,904.15	3,158,026.55	\$115,385.92	\$2,758,881.88	¹ 5,911,858.43
Horses for Cavalry, Artillery, Engineers, etc.....	3,000.00	3,000.00	.....	.....	3,000.00
Barracks and quarters, Philippine Islands.....	790,000.00	702,442.11	4,321.80	91,879.83	² 794,321.94
Barracks and quarters.....	51,000.00	51,000.00	.....	.....	51,000.00
Military Post exchanges.....	9,930.00	9,930.00	.....	.....	9,930.00
Roads, walks, wharves, and drainage.....	201,317.00	190,626.55	77.80	10,278.35	200,999.00
Construction and repair of hospitals	50,000.00	49,608.78	.....	335.10	49,943.85
Quarters for hospital stewards.....	1,000.00	1,000.00	.....	.....	1,000.00
Shooting galleries and ranges.....	7,018.00	5,484.00	.....	27.09	5,511.09
Disposition of remains of officers, soldiers, and civilian employees.....	14,000.00	9,210.00	.....	4,789.40	13,999.40
Supplies, services, and transportation, Quartermaster Corps, 1916-17.....	438,061.00	362,942.11	225.91	71,349.17	434,191.78
Pay, etc., of the Army, 1917-18.....	150,000.00	150,000.00	.....	.....	150,000.00

¹ \$38,045.72 withheld to cover net debt Treasury transfer settlements, etc., Philippine Islands accounts.

² Barracks and quarters, Philippine Islands, is a continuous appropriation. Apparent overdraft covered by credit Treasury transfer settlements, etc., accruing from prior years.

The amounts apportioned and remitted, appropriation "Horses for Cavalry, Artillery, Engineers, etc.," are for local disbursements only.

Letters, etc.:

Received during fiscal year 1917.....	14,198
Sent during fiscal year 1917.....	14,141

Officers' money accounts.

On hand July 1, 1916.....	151
Received during fiscal year 1917.....	4,108
Examined and sent to the Auditor for the War Department during the fiscal year 1917.....	3,867
On hand at close of year 1917.....	392
Number of certificates of deposit received during fiscal year.....	4,305
Letters, etc.:	
Received during fiscal year 1917.....	37,763
Sent during fiscal year 1917.....	43,645

Beneficiaries.—During the period July 1, 1916, to June 30, 1917, payments were made under authority of act of Congress approved

May 11, 1908, to the beneficiaries of 40 officers of the Regular Army, \$64,110; for 515 enlisted men of the Regular Army, \$53,735.57; 12 enlisted men of the Philippine Scouts, \$598.03; to 21 officers of the National Guard, \$24,192.95; to 116 enlisted men of the National Guard, \$10,051.12, making a total disbursement on account of officers, \$88,302.95; enlisted men, \$64,384.72; making a grand total of \$152,687.67.

There was withheld on account of expenses of interment, from officers of the Regular Army, \$2,600; enlisted men of the Regular Army, \$14,108.51; enlisted men of the Philippine Scouts, \$45.97; officers of the National Guard, \$1,557.05; enlisted men of the National Guard, \$3,900.53, making a total amount withheld in case of officers, \$4,157.05; enlisted men, \$18,009.04; enlisted men Philippine Scouts, \$45.97; grand total withheld, \$22,212.06.

Mileage.—Mileage disbursements for the fiscal year ended June 30, 1917, were as follows:

Mileage disbursements for the fiscal year ended June 30, 1917, excepting money accounts for June.

Duty.	Appropriations.	
	1916	1917
Inspection of the Army:		
By generals commanding departments, accompanied by officers of their staffs, as provided by Army Regulations 191.....	\$72.30	\$3,985.88
By brigade commanders, as provided by Army Regulations 194.....		500.85
By Coast Artillery district commanders, as provided by Army Regulations 194.....	16.04	2,484.84
By officers of the General Staff.....	2.67	1,837.19
By officers of the Inspector General's Department.....	397.56	9,303.44
By officers of the Judge Advocate General's Department.....		578.43
By officers of the Quartermaster Corps.....	858.08	15,448.24
By officers of the Medical Department.....	263.92	3,361.45
By officers of the Corps of Engineers.....	47.53	2,603.26
By officers of the Ordnance Department.....	261.75	9,714.02
By officers of the Signal Corps.....	148.52	6,261.25
By officers of the Coast Artillery Corps.....	7.42	688.88
By officers of the Field Artillery.....		217.91
Inspection of:		
Buildings.....		7.96
Educational institutions.....		1,175.69
Fortifications by officers of Corps of Engineers.....		506.37
Horses.....	99.83	2,065.73
Mobilization camp sites.....		269.32
Signal Corps equipment, General Orders 146, War Department, 1911.....		69.90
Target ranges.....		15.52
Troops.....	139.78	3,900.91
Special inspections.....	25.62	562.67
Total for inspections.....	2,341.02	65,559.83
Accompanying allied commissions.....		151.76
Alaskan Road Commission.....		316.41
Attending funerals.....		238.38
Attending national memorial celebration and peace jubilee.....		91.78
Boards:		
Army schools.....		118.44
Aviation.....	176.68	5,248.23
Cavalry equipment and drill regulations.....	900.48	913.26
Examination of guns and gunners.....		1,452.34
Examination of officers for assignment and promotion.....	1,454.88	28,381.40
Fire control and installation.....	77.28	271.03
General Staff.....	51.25	258.56
Land defenses.....	63.72	806.52
Medals of honor.....		167.09
Military athletics.....		230.01
Military posts and buildings.....		237.75
Mobilization camps.....		1,250.70
Ordnance and fortifications.....	113.71	2,067.71
Property accountability.....		107.94
Remount depots.....		2.08
Retirement of officers.....	512.96	6,725.51
Signal Corps regulations.....		148.73
Joint Army and Navy.....	15.96	542.37

Mileage disbursements for the fiscal year ended June 30, 1917, excepting money accounts for June—Continued.

Duty.	Appropriations.	
	1916	1917
Change of station of officers of the staff departments.....	\$5,711.07	\$134,542.29
Change of station of officers of the line.....	12,700.23	222,481.73
Conducting prisoners.....		2,771.93
Conducting sick and insane.....		2,724.71
Consultation with bureau chiefs, department commanders, and others.....	243.40	3,299.66
Court-martial duty.....	72.13	6,755.26
Delivering military lectures to schools and colleges.....		1,471.84
Horsemanship, walking tests.....	1.96	1,057.73
Instructions of Secretary of War (confidential duty).....		1,368.39
Leases and other legal business.....		1,108.96
Line officers on duty pertaining to the Quartermaster Corps.....	159.61	4,185.54
Maneuvers and camps of instructions.....	1,309.14	14,318.02
Military intelligence.....		218.23
Payment of troops and obtaining funds therefor.....	65.06	10,714.43
Recruiting service:		
Conducting recruits.....	50.76	18,035.22
Joining station after assignment to duty.....	76.33	8,250.73
Regular travel to auxiliary stations.....	7,124.90	125,207.68
Relief from duty.....	55.51	2,321.96
Special investigations.....	37.31	1,321.68
Target practice.....	69.16	32,312.62
Topographical duty.....	5.60	799.12
Travel connected with coordination of railroads with reference to mobilization camps.....		1,906.88
Travel connected with expedition to China.....	13.65	2,428.07
Travel connected with examination of candidates for commissions in Officers' Reserve Corps.....		3,091.31
Travel connected with muster in and out of the National Guard.....	2,897.59	37,952.70
Travel of dental surgeons in rendering dental treatment.....	68.63	1,112.45
Travel of generals and aids, not inspection.....		336.15
Travel of military attachés while on duty as such.....	369.32	1,667.87
Travel of military attachés in joining for duty.....	452.88	4,033.96
Travel of military observers when joining and when relieved from duty as such.....	113.06	1,905.10
Travel of officers detailed for duty at training camps.....		23,313.94
Travel of officers for medical treatment.....	545.00	10,861.69
Travel of officers qualifying as balloon pilots.....		30.85
Travel of professors of Military Academy.....		96.70
Travel on confidential duty under orders of the President.....		83.24
Witness before congressional military committees.....		1,191.09
Witnessing coast defense exercises.....		30.43
Witnessing naval target practice.....		107.80
Duty not stated.....	27.42	329.35
Total disbursements by Quartermaster Corps.....	37,877.06	801,114.37
Total paid on Treasury Department settlements.....	1,364.47	866.94
Grand total.....	39,241.53	801,981.31

Property accounts.—The number of vouchers to property accounts handled during the fiscal year ended June 30, 1917, is as follows:

On hand July 1, 1916.....	14,217
Received during the fiscal year.....	630,511
Posted to property accounts.....	609,253
On hand June 30, 1917.....	35,475
Less vouchers pertaining to property accounts of United States property and disbursing officers of the several States and District of Columbia, which will be turned over to the Militia Bureau for file with returns.....	6,023
On hand June 30, 1917, to be posted.....	29,452
Letters, etc.:	
Received during fiscal year.....	16,008
Written during fiscal year.....	16,983

Deposits and allotments.—Report of soldiers' deposits received and repaid during the fiscal year ended June 30, 1917:

Deposits received:	
Number.....	52, 654
Amount.....	\$1, 219, 193. 02
Deposits repaid by quartermasters:	
Number.....	16, 446
Principal.....	\$596, 771. 98
Interest.....	\$48, 104. 39
Amount remaining to credit of depositors June 30, 1917.....	\$3, 341, 970. 95

During the period July 1, 1916, to June 30, 1917, there was disbursed \$1,499,821.61 in payment of allotments made by enlisted men of the Army.

The total number of allotments in force on June 30, 1917, was 9,675.

Letters, etc.:	
Received during fiscal year 1917.....	37, 278
Sent during fiscal year 1917.....	20, 305

Subsistence returns.—The number of subsistence returns handled during the fiscal year ended June 30, 1917, is as follows:

On hand June 30, 1916.....	110
Received during the fiscal year.....	2, 731
Examined during the fiscal year.....	2, 802
On hand unexamined, June 30, 1917.....	39
Letters, etc.:	
Received during fiscal year 1917.....	2, 228
Sent during fiscal year 1917.....	3, 563

Dependent aid.—In view of the mobilization of troops on the Mexican border, and the service of various military organizations in Mexico, Congress in the act of August 29, 1916, made the following provision for the support of dependents of the enlisted personnel of the Regular Army and National Guard:

That the sum of \$2,000,000 is hereby appropriated out of any money in the Treasury not otherwise appropriated, to be expended under the direction of the Secretary of War, and under such rules and regulations as he may prescribe, for the support of, at a cost of not more than \$50 per month, or so much of said amount as the Secretary of War may deem necessary, and not more than such enlisted man has been contributing monthly to the support of his family at the time of his being called or drafted into the service of the United States or during his enlistment period in the Regular Army at the time of such call or draft of the Organized Militia or National Guard, the family of each enlisted man of the Organized Militia or National Guard called or drafted into the service of the United States until his discharge from such service, and the family of each enlisted man of the Regular Army until his discharge from active service therein or until the discharge of the Organized Militia or National Guard from such service if such enlisted man is at that time in active service in the Regular Army, which family during the term of service of such enlisted man has no other income, except the pay of such enlisted man, adequate for the support of said family.

This act was amended by the act of September 8, 1916, as follows:

SEC. 901. The act approved August 29, 1916, being an act making appropriations for the support of the Army for the fiscal year ending June 30, 1917, and for other purposes, is hereby amended as follows:

The sum of \$2,000,000 therein appropriated to be expended under the direction of the Secretary of War for the support of the family of each enlisted man of the Organized Militia or National Guard, or of the Regular Army, as therein provided, shall be available to be paid on the basis of and for time subsequent to June 18, 1916, the date of the call by the President, and the time for which such payment shall be made shall correspond with the time of service of the enlisted men, and payment shall be made without reference to the enlisted man having enlisted before or after the call by the President.

The two millions of dollars appropriated in the act of August 29, 1916, was increased by subsequent appropriations to \$8,250,000. Under direction of the Secretary of War the distribution of this fund, the formulation of the necessary procedure, and drafting of the necessary regulations governing such distributions, were assigned to the Quartermaster Corps. The work of distribution of this Federal aid was definitely discontinued by the following provision, carried in the deficiency act approved April 17, 1917:

Provided, That the provision in the act of August 29, 1916, as amended by section 901 of the act of September 8, 1916, for the Federal support of families of enlisted men shall, with respect to enlisted men belonging to organizations of the Organized Militia or National Guard which entered the service of the United States under the calls of the President of May 9, 1916, and June 18, 1916, and enlisted men of the Regular Army who by the provisions of acts above cited are beneficiaries thereof only during the time the Organized Militia or National Guard continue in the service of the United States under said calls, apply only to applications stated in the form prescribed by the Secretary of War which are received in the office of the depot quartermaster, Washington, D. C., on or before June 30, 1917.

The disbursement of this fund was made by the depot quartermaster, Washington, D. C., under the direction of the Quartermaster General's office. Aid was furnished to the families of 25,280 enlisted men, divided as follows:

	Men.
To Regulars.....	4,397
To the National Guard.....	20,883
Total.....	25,280

The amount disbursed was as follows:

To Regulars.....	\$477,611.47
To the National Guard.....	4,399,660.28
Total.....	4,877,271.75

These expenditures were scattered over every State in the Union and some of them sent to foreign countries. Payments were made promptly and accurately without the installation of expensive overhead machinery, the only additional outlay entailed being the addition of a comparatively small number of clerks to the office of the depot quartermaster.

General Orders No. 42, War Department, 1916, announced the appropriation and its purpose to the service. This order was rescinded and General Orders No. 47, dated September 14, 1916, substituted therefor, this change being made necessary by the amendment of the original act by the provision in the act approved September 8, 1916.

OFFICIAL TABLE OF DISTANCES.

Under the provisions of the act of June 12, 1916 (34 Stat., 246), payment and settlement of mileage accounts of officers are made in accordance with mileage tables prepared by the Quartermaster General of the Army under the direction of the Secretary of War. These tables are used generally throughout the public service in computing all accounts for travel allowances where the payment is contingent upon the distance traveled. The last official table of distances was published in 1910, and a revision is now being made with a view to the early issuance of a new table. The new table

will be ready for submission to the printer about October 31, 1917, and it is believed will be available for distribution to the service before the end of the present calendar year.

ESTIMATES BRANCH.

On October 5, 1916, pursuant to office orders No. 10, a branch of the administrative division to be known as the "Estimates branch" was established. On October 16 the name was changed to "Estimates, reserve depots, and national defense act branch." It was divided into two sections—estimates and cost keeping. It prepares all estimates of funds required by the Quartermaster Corps; has supervision, so far as the Quartermaster Corps is concerned, over all schools and colleges at which one or more units of the Reserve Officers' Training Corps have been established; drafts all the legislation to be submitted to Congress; considers questions pertaining to the national defense act; and keeps the cost records.

Estimates were prepared as follows:

Annual estimates for the support of the Army for the fiscal year 1918.	\$196, 074, 720. 45
Supplemental estimate, Regular Army, 1918.....	11, 743, 922. 00
Urgent deficiency, 1917.....	45, 607, 838. 48
Urgent deficiency, 1917-18 (1,072,908 men).....	1, 473, 555, 893. 11
Urgent deficiency, 1918, owing to increase of Army to 2,033,345 men.	2, 257, 120, 068. 04
Sundry civil.....	14, 723, 739. 59
Legislative, executive, and judicial for fiscal year 1918.....	411, 840. 00
Legislative, executive, and judicial, supplemental.....	577, 065. 00
Legislative, executive, and judicial, deficiency.....	112, 231. 28
Claims.....	9, 588. 31

Of the drafts of legislation submitted to the Congress, the following were enacted into law:

Making the mileage appropriation available for travel performed by members of the Officers' Reserve Corps.

Providing that members of the Officers' Reserve Corps who are in the Government service shall, when relieved from duty, be restored to their former positions.

Making the pay of the Army for the fiscal years 1916 and 1917 available for the pay and allowances of inspectors and assistant inspectors small arms practice of the National Guard.

Authorizing disbursing officers of the Quartermaster Corps accountable for public funds to turn the same over to other officers to disburse as their agents.

Setting June 30, 1917, as the time limit within which claims may be presented by dependent families of enlisted men of the National Guard and Regular Army.

Bringing into one statute all the laws providing for additional pay for marksmanship, etc.

Providing transportation and subsistence for the West Point cadets who attend the inaugural ceremony.

Providing that retired officers detailed as acting quartermasters shall be regarded as not on duty with troops.

Providing for the continued service pay of enlisted men discharged to accept commissions.

Providing for the subsistence of members of the Regular Army Reserve when ordered to active duty; also for commutation when rations in kind are not practicable.

Providing that part of the Presidio of San Francisco Military Reservation may be conveyed to the University of California.

Providing that institutions of learning, where one or more units of Reserve Officers' Training Corps have been established, may provide the uniforms for their students and receive from the Government commutation therefor in the cost to the Government of the prescribed uniforms.

Prescribing the extra duty pay for members of the United States Disciplinary Barracks Guard.

Extending the extra duty pay to members of the Medical Corps when on duty in Alaska in connection with the Washington-Alaska cable and telegraph system.

Providing for the increase of longevity pay to retired officers when assigned to active duty.

Repealing section 1120 of the Revised Statutes providing a premium of \$2 for each recruit secured.

Making the 1917 mileage appropriation available to pay travel performed by Army field clerks and field clerks of the Quartermaster Corps.

Providing for the alteration and additions to buildings at the Jeffersonville Depot for the installation of machinery for the manufacture of clothing.

Increasing the limit of cost of the nurses' dormitory at Fort Sam Houston, Tex., to \$30,000.

Securing funds for the purchase of land adjoining the military reservation at Fort Sam Houston, Tex.

Providing for the transfer of wharf No. 2, in the city of Honolulu, owned by the Navy Department, to the War Department in exchange for wharf No. 1, owned by the War Department.

Providing for target range at Vancouver.

Providing for the transfer of horses and pack mules to the National Guard.

Mileage for travel performed by ordnance officers to be payable from the appropriation for the work in connection with which the travel was performed.

Providing for payment at the rate of \$100 per month for persons undergoing training at the civilian military training camps.

Providing for travel pay at the rate of 3½ cents per mile for citizens attending training camps.

Providing that employees of the United States and the District of Columbia who receive commissions in the Officers' Reserve Corps shall be entitled to the statutory leaves and to the salaries of both positions.

Members of the Officers' Reserve Corps may render gratuitous services to the Government.

Authorizing the Secretary of Commerce to issue to the transports *Meade* and *Crook* registers as vessels of the United States.

Providing for 5 and 10 per cent increases of pay of Federal employees.

Act modifying the printing and binding act during actual or threatened hostilities.

SUPPLIES.

Statement of issues made during the fiscal year 1917.

Garrison, travel, reserve, trail, and field rations (87,975,970); average cost, 33.0255 cents.....	\$29, 054, 546. 37
Filipino ration (2,032,431); average cost 17.9 cents	363, 805. 15

Number, value, and average cost of rations, by geographical divisions, etc., issued during the fiscal year 1917.

Divisions.	Number of rations.	Value.	Average cost.
United States (includes Canal Zone).....	80,025,798	\$26,648,590.73	<i>Cents.</i> 33.30
Alaska.....	202,209	81,368.90	40.24
Hawaii.....	3,080,996	967,432.74	31.40
Philippines (American).....	4,666,967	1,357,154.00	29.08
Total average cost:			
American.....	87,975,970	29,064,546.37	33.0255
Philippines (native).....	2,032,431	363,805.15	17.90
Canal Zone.....	2,409,300	868,427.97	37.29
Militia.....	33,792,480	11,252,896.54	33.30

Average cost of the ration, with and without transportation.—The average cost of the actual food included in the garrison ration (American) during the fiscal year 1917, was as follows:

	<i>Cents.</i>
At all posts or stations in United States (including Alaska and Hawaii).....	33.2466
At all posts or stations in the Philippines.....	29.0799
At all posts or stations in United States and Philippines.....	33.0255

The cost of transportation charged on subsistence supplies was \$987,754.84. Charging this amount to the total cost of the garrison ration issued, it gives for the fiscal year 1917 an increased cost for each ration of 1.123 cents, thus making the cost of the garrison ration delivered, including food and transportation, as follows:

	<i>Cents.</i>
At all posts or stations in the United States.....	34.3696
At all posts or stations in the Philippines.....	30.2029
At all posts or stations in the United States and Philippines.....	34.1485

Yearly and per diem cost of subsistence per man in the United States and the Philippine Islands.

	Rations.	Men (daily average).	Net cost.	Average cost per year.	Average cost per day.
Cost in United States.....	83,309,003	228,244	\$27,697,392.37	\$121.36	<i>Cents.</i> 33.25
Cost in Philippines.....	6,669,398	18,355	1,720,959.15	93.77	25.69

Emergency rations.—The question of the selection and adoption of a suitable emergency ration for use of the Army, has been given thorough and exhaustive consideration by this office.

Difficulty was experienced with the emergency ration devised by the food experts of the Department of Agriculture, working in conjunction with the officers of the Medical Department and the Quartermaster Corps of the Army, owing to the odor and rancidity, which were noted after the ration had been packed for several months, and additional investigations and experiments were conducted.

These investigations developed the fact that it would require eight months to obtain a small quantity of this emergency ration. Then, even if found suitable and adopted, it would, in effect, be giving a monopoly to one individual—as but one person showed a willingness to bid on the emergency ration in this form—and under any circumstances, it would hardly be possible that sufficient quantity of such a

ration could be promptly obtained in the market to meet the needs of the service.

Rolling kitchens.—A board of officers was convened on September 13, 1916, under special order, from department headquarters, Southern Department, for the purpose of supervising, observing and reporting upon trials of various rolling kitchens, for the purpose of selecting and adopting a satisfactory type for issue to the Army.

After consideration of the report and findings of this board of officers by the War College division, the Secretary of War on April 20, 1917, decided to introduce rolling kitchens into the service at the rate of one rolling kitchen for each company, troop, and battery of the mobile army, except that one kitchen will be issued for the joint use of the headquarters, supply and machine gun companies.

Under the provisions of paragraph 6, Special Orders, No. 6, War Department, June 8, 1917, a board of officers was appointed to meet at Washington Barracks, D. C., to try out various types of rolling kitchens, and as soon as a satisfactory type is evolved, steps will be taken to procure these kitchens as rapidly as possible, and equip all the organizations of the Army, in accordance with the allowances prescribed by the Secretary of War.

Administration of depots.—During the year the matter of supervision, control, and administration of general depots of the Quartermaster Corps was transferred to the supplies division. Under date of April 7, 1917, the Secretary of War approved the establishment of a quartermaster depot at Atlanta, Ga., for the purpose of supplying troops in the new Southeastern Department. Under similar authority dated April 19, 1917, a purchasing depot of the Quartermaster Corps was established at Los Angeles, Cal., for the purpose of supplying troops in the lower portion of the Western Department.

Bakers and cooks.—The personnel of 40 new bakery companies is being organized, equipped, and trained under the act of May 18, 1917, so as to provide for the increase in the Army. There is also being organized 16 additional training schools for bakers and cooks, one at each of the National Army cantonments. This in order to train cooks of the National Army in their own kitchens when that Army is organized and also to provide cooks for future increments of that Army.

Manual for Army bakers and Army cooks.—During the year, the Manual for Army Bakers and the Manual for Army Cooks have been revised and brought up to date and published and distributed to the Army at large.

Losses.—The following losses occurred during the year and are based on the losses for nine months, which is the latest data available:

Ordinary wastage.....	\$53, 136. 22
Deterioration.....	56, 082. 76
Loss in transit.....	10, 815. 42
Loss, carriers and sellers responsible.....	22, 205. 53
Theft or fire.....	8, 390. 94
Miscellaneous.....	5, 757. 33
Total.....	156, 388. 20
Deduct gains.....	\$67, 326. 18
Deduct sales at auction.....	1, 696. 89
Deduct reclamation made on carriers and sellers.....	22, 205. 53
Total.....	91, 228. 60
Total net losses.....	65, 159. 60
Issues to destitutes.....	34. 56

Fresh beef, prices of, at posts, depots, etc., fiscal years 1916 and 1917.

	Price per pound.			Price per pound.	
	1916	1917		1916	1917
Eastern Department:	<i>Cents.</i>	<i>Cents.</i>	Central Department—Continued.	<i>Cents.</i>	<i>Cents.</i>
Fort Adams, R. I.	11.18	12.35	Fort Riley, Kans.	11.85	11.71
Fort Andrews, Mass.	11.88	11.96	Fort Robinson, Nebr.	12.25	12.25
Fort Banks, Mass.	11.88	11.96	Fort Sheridan, Ill.	11.45	11.46
Fort Barrancas, Fla.	13.09	12.68	Fort Snelling, Minn.	12.09	12.49
Fort Caswell, N. C.	11.65	12.31	Fort Wayne, Mich.	12.3	12.06
Fort Constitution, N. H.	11.84	13.22	Southern Department:		
Fort Crockett, Tex.	11.22	11.91	Fort Sam Houston, Tex.		
Fort Dade, Fla.	11.66	12.74	(headquarters)	10.83	11.41
Fort DuPont, Del.	12.13	12.45	Army and Navy General Hospital, Hot Springs	11.11	11.6
Fort Ethan Allen, Vt.	12.08	11.92	Army and Navy General Hospital, Fort Bayard, N. Mex.	12.16	12.48
Fort Greble, R. I.	11.18	12.35	Fort Bliss, Tex.	11.01	11.3
Fort Hamilton, N. Y.	10.27	11.67	Fort Clark, Tex.	12.38	13.23
Fort Hancock, N. J.	10.79	11.71	Fort Huachuca, Ariz.	11.9	12.7
Fort H. G. Wright, N. Y.	12.08	11.95	Fort McIntosh, Tex.	13.15	12.6
Fort Howard, Md.	11.3	11.98	Fort Sill, Okla.	11	11.3
Fort Hunt, Va.	10.92	11.98	Fort Wingate, N. Mex.	10.43	.....
Jackson Barracks, La.	11.49	12.49	Western Department:		
Henry Barracks, P. R.	14	16	San Francisco, Cal. (headquarters)	11.44	.....
Fort Jay, N. Y.	9.8	12.49	Fort Columbia, Wash.	.....	13.99
Key West Barracks, Fla.	14.99	11.59	Fort Davis, Alaska.	19	18.75
Fort Knox, Me.	.....	16.6	Fort Douglas, Utah	11.9	.....
Fort Logan H. Roots, Ark.	11.55	12.74	Fort George Wright, Wash.	11.65	12.4
Fort McKinley, Me.	11.21	12.31	Fort Gibbon, Alaska.	32.5	33.33
Fort McPherson, Ga.	10.47	11.87	Presidio of Monterey, Cal.	11.48	12
Madison Barracks, N. Y.	12.09	13.48	Presidio of San Francisco, Cal.	10.49	10.69
Fort Monroe, Va.	10.47	11.71	Presidio General Hospital, San Francisco	10.43	10.39
Fort Monroe, Ala.	11.38	11.94	Recruit depot, Fort McDowell	10.49	10.69
Fort Mott, N. J.	12.13	12.95	Fort Rosecrans, Cal.	10.75	11.9
Fort Moultrie, S. C.	11.57	11.91	Fort St. Michael, Alaska	32.5	33.33
Fort Myer, Va.	10.92	11.79	Fort Stevens, Oreg.	12.74	13.99
Fort Niagara, N. Y.	12.75	14	Vancouver Barracks, Wash.	12.35	13.69
Fort Oglethorpe, Ga.	11.58	11.94	Fort Winfield Scott, Cal.	10.43	10.39
Fort Ontario, N. Y.	11.9	12.28	Fort Yellowstone, Wyo.	13.5	13.5
Plattsburg Barracks, N. Y.	12.3	12.43	Hawaiian Department.	13.25	12.7
Fort Porter, N. Y.	11.37	12.99	Philippine Department.	13.575	9.5
Fort Rodman, Mass.	11.9	12.35	Independent stations:		
San Juan, P. R.	13.75	15.25	United States Disciplinary Barracks, Alcatraz Island	10.49	10.69
Fort Screven, Ga.	10.95	11.41	United States Military Academy, West Point	11.27	12.35
Fort Slocum, N. Y.	11.42	11.91	Seattle, Wash.	12.4	13.65
Fort Strong, Mass.	11.88	11.94	Depots (general and remount):		
Fort Terry, N. Y.	12.08	11.95	El Paso, Tex.	10.91	11.29
Fort Thomas, Ky.	12.2	12.36	Fort Keogh, Mont.	14	14
Fort Totten, N. Y.	9.93	12.17	Fort Reno, Okla.	11.21	11.2
Fort Wadsworth, N. Y.	10.84	12.24	Arsenals and armories:		
Walter Reed Hospital	11.2	11.29	Augusta, Ga.	12.08	12.95
Fort Warren, Mass.	11.88	11.96	Frankford Arsenal, Pa.	11.42	12.85
Washington Barracks, D. C.	10.92	11.29	Rock Island Armory, Ill.	11.47	11.21
Fort Washington, Md.	10.92	11.79	Springfield Armory, Mass.	11.94	12.4
Fort Williams, Me.	11.21	12.21	Watertown Arsenal, Mass.	.....	12.97
Fort Wood, N. Y.	11.17	12.20	Watervliet Arsenal, N. Y.	12.98	12.95
Central Department:			Mexican border:		
Fort Brady, Mich.	11.94	12.22	Douglas, Ariz.	11.85	12.2
Fort Benj. Harrison, Ind.	12.08	12.37	Naco, Ariz.	11.85	12.2
Fort Crook, Nebr.	11.47	11.36	Nogales, Ariz.	12.15	12.75
Fort D. A. Russell, Wyo.	11.78	12.24	Sparta, Wis. (Camp Robinson and McCoy, military reservations)	11.9	.....
Fort Des Moines, Iowa	11.69	11.21			
Fort Leavenworth, Kans.	10.89	10.93			
Fort Mackenzie, Wyo.	13.44	11.9			
Fort Meade, S. Dak.	12.89	12.71			
Fort Missoula, Mont.	11.27	11.35			
Fort Omaha, Nebr.	11.54	11.71			
Recruit depot, Columbus Barracks	11.59	11.7			
Recruit depot, Jefferson Barracks	11.19	11.74			
Recruit depot, Fort Logan, Colo.	11.63	11.89			

Forage.—The expenditures during the fiscal year for forage for animals pertaining to the Army, exclusive of the Philippine Islands, amounted to \$7,741,277.42. This includes the forage purchased and shipped to Alaska, Hawaii, Porto Rico, and the Panama Canal Zone. In addition to the above there was purchased 112,081 pounds of dog food at a cost of \$7,976.48.

Quantities and cost of forage and bedding purchased during the fiscal year 1917 except that purchased for the Philippine Islands.

Kind.	Pounds.	Total cost.	Average cost.
			<i>Cents.</i>
Oats.....	244,066,627	\$4,223,707.80	1.7303
Hay.....	469,928,564	3,198,742.83	1.6809
Bran.....	4,334,177	76,990.92	1.7763
Corn.....	752,742	13,131.17	1.744
Barley.....	297,623	6,818.75	2.291
Compressed forage.....	309,869	9,051.31	2.921
Cottonseed meal.....	620,603	13,735.23	2.2116
Bedding.....	39,176,067	198,099.41	.506
Dog food.....	112,081	7,976.48	7.1169
Total.....	759,628,353	7,749,253.90	
Total forage and bedding purchased (except for the Philippines and exclusive of dog food).....	759,516,272	7,741,277.42	

Of the above supplies the following were shipped to Alaska, Porto Rico, Hawaii, and the Panama Canal Zone:

	Pounds.	Cost.		Pounds.	Cost.
Canal Zone:			Alaska:		
Oats.....	6,178,670	\$132,517.53	Oats.....	306,240	\$4,562.98
Hay.....	8,341,297	134,807.26	Hay.....	492,606	6,587.22
Bran.....	153,500	3,111.39	Bran.....	15,040	190.61
Straw.....	2,019,997	19,835.11	Corn.....	10,180	195.07
Total.....	16,663,464	290,271.29	Straw.....	112,598	673.68
			Dog food.....	112,081	7,976.48
Porto Rico:			Total.....	1,048,725	20,186.04
Oats.....	447,019	8,955.32			
Hay.....	834,914	9,259.51	Hawaii:		
Bran.....	92,130	1,286.19	Oats.....	6,940,754	114,400.66
Straw.....	176,020	1,157.66	Hay.....	15,949,047	144,721.84
Total.....	1,550,083	20,658.68	Bran.....	249,926	3,290.50
			Total.....	23,139,727	262,413.00

In addition to the above supplies, the following was purchased in the Hawaiian Islands:

	Pounds.	Cost.
Bedding.....	2,284,788	\$16,198.97

The following quantities of forage were purchased for shipment to the Philippine Islands during the fiscal year 1917:

	Pounds.	Cost.
Oats.....	18,000,000	\$289,100.00
Hay.....	18,000,000	162,300.00
Total.....	36,000,000	451,300.00

In addition to the above, the following quantity of forage was purchased and furnished to the Organized Militia:

	Pounds.	Cost.
Oats.....	5,923,584	\$129,486.56
Hay.....	8,038,752	78,633.01
Bran.....	261,528	4,045.72
Corn.....	3,000	241.88
Bedding.....	2,085,823	12,584.06
Total.....	16,312,687	224,991.23

Forage specifications.—Due to the changed conditions, it was found necessary to change the specifications for forage, and after a conference held between the large forage dealers, representatives of the Council of National Defense, and representatives of the Quartermaster Corps, and after consultation with the Department of Agriculture, the following specifications were adopted. The specifications for hay and straw provide for grades of hay and straw similar to those in use by the National Hay Association. The specifications for oats provide for several grades. Johnson grass hay and clover hay have also been added as an authorized article of forage. It is believed that these new specifications, which are broader than the specifications formerly in use, will result in greater competition, and that there will be no grounds for complaint on the part of contractors as to the quality of hay to be supplied under their contracts.

SPECIFICATIONS FOR OATS.

No. 2 white oats shall be 95 per cent white, dry to the extent of containing not to exceed 12 per cent moisture, sweet, shall contain not more than 1 per cent of dirt and 1 per cent of other grain, and weigh not less than 29 pounds to the measured bushel.

Standard white oats shall be 92 per cent white, dry to the extent of containing not to exceed 12 per cent moisture, sweet, shall not contain more than 2 per cent of dirt and 2 per cent of other grain, and weigh not less than 28 pounds to the measured bushel.

No. 2 mixed oats shall be oats of various colors, dry to the extent of containing not to exceed 12 per cent moisture, sweet, shall not contain more than 2 per cent of dirt and 2 per cent of other grain, and weigh not less than 28 pounds to the measured bushel.

No. 2 red oats shall be seven-eighths red, sweet, dry to the extent of containing not to exceed 12 per cent moisture, and shall not contain more than 2 per cent dirt or foreign matter, and weigh 30 pounds to the measured bushel.

No. 2 white clipped oats shall be 95 per cent white, dry to the extent of containing not to exceed 12 per cent moisture, sweet, shall not contain more than 2 per cent of dirt or foreign matter, and weigh not less than 32 pounds to the measured bushel.

SPECIFICATIONS FOR HAY FOR FEEDING.

No. 1 timothy hay shall be timothy, mixed with not more than one-eighth clover or other tame grasses, may contain some brown blades, properly cured, good color, sound, and well baled.

Standard timothy hay shall be timothy, with not more than one-eighth clover or other tame grasses, may contain brown heads and blades, otherwise good color, sound, and well baled.

No. 2 timothy hay shall be timothy, not good enough for No. 1, mixed with not over one-fourth clover or other tame grasses, fair color, sound, and well baled.

No. 1 light clover mixed hay shall be timothy, mixed with clover. The clover mixture not over one-third, properly cured, sound, good color, and well baled.

No. 2 light clover mixed hay shall be timothy and clover mixed, the clover mixture not over one-third, properly cured, fair color, sound, and well baled.

No. 1 clover mixed hay shall be timothy and clover mixed, with at least one-half timothy, good color, sound, and well baled.

Choice alfalfa shall be reasonably fine leafy alfalfa, of bright green color, properly cured, sound, sweet, and well baled.

No. 1 alfalfa shall be reasonably coarse alfalfa, of a bright green color, or reasonably fine leafy alfalfa of a good color and may contain 2 per cent of foreign grasses; 5 per cent of air-bleached hay on outside of bale allowed, but must be sound and well baled.

Standard alfalfa may be of green color, of coarse or medium texture, and may contain 2 per cent foreign matter; or it may be green color, of coarse or medium texture, 20 per cent bleached and 2 per cent foreign matter; or it may be of greenish cast, of fine stem and clinging foliage, and may contain 5 per cent foreign matter; all to be sound, sweet, and well baled.

Choice prairie hay shall be upland hay of bright, natural color, well cured, sweet, sound, and may contain 3 per cent weeds.

No. 1 prairie hay shall be upland, and may contain 15 per cent midland, both of good color, well cured, sweet, sound, and may contain 8 per cent weeds.

No. 2 prairie hay shall be upland, of fair color, and may contain 25 per cent midland, both of good color, well cured, sweet, sound, and may contain 12½ per cent weeds.

No. 2 Johnson hay shall be Johnson hay mixed with not more than one-fifth clover or some other native grasses, sound, bright color, and well baled.

Choice alfalfa and Johnson mixed hay shall be three-quarters alfalfa of good color, sound, and well baled, mixed with one-quarter of Johnson hay of good color.

No. 1 alfalfa and Johnson mixed hay shall be alfalfa and Johnson hay, one-half of each, of good color, sound, and well baled.

SPECIFICATIONS FOR HAY FOR BEDDING.

No 1 midland hay shall be midland hay of good color, well cured, sweet, sound, and may contain 3 per cent of weeds.

No. 2 midland hay shall be of fair color, or slough hay of good color, and may contain 12½ per cent of weeds.

SPECIFICATIONS FOR STRAW.

No. 1 tangled rye straw shall be reasonably clean rye straw, good color, sound, and well baled.

No. 1 wheat straw shall be reasonably clean wheat straw, sound, and well baled.

No. 1 oat straw shall be reasonably clean oat straw, sound, and well baled.

SPECIFICATIONS FOR BRAN.

Bran to be wheat bran of the highest grade of the locality, best quality, coarse, fresh, and free from dirt and other impurities.

SPECIFICATIONS FOR BARLEY.

Barley to be graded, of the best quality, sound, plump, clean, bright, free from other grains, and to be dry to the extent of containing not to exceed 12 per cent of moisture.

SPECIFICATIONS FOR CORN.

Corn to be graded (white or yellow) corn, of the best quality, sound, plump, clean, free from dust and other impurities, and to be dry to the extent of containing not to exceed 14 per cent of moisture.

DELIVERY.

For domestic uses.—The oats, barley, and corn to be delivered in good, strong, new burlap sacks, containing about 125 pounds each; the weight of the sacks to be deducted, and the sacks to become the property of the United States.

The bran to be delivered in good, strong, new burlap sacks, containing about 100 pounds each; the weight of the sacks to be deducted, and the sacks to become the property of the United States.

The hay and straw to be delivered in bales or loose, as may be required. The size of the bales is optional with bidder, but bidders should state in their bids the approximate weight of the bales they propose to furnish.

Bidders may submit proposals for delivery of hay and straw at railroad points other than the places at which required; in which case the density of compression of the hay or straw must be stated. The cost of transportation from place of delivery to the post will be considered in making awards.

For over-seas shipment.—Oats, barley, and corn, to be delivered in good, strong, new burlap double sacks, securely sewed with 12 stitches. In addition to the first or anchor stitch and the two half hitches now used for forming the first ear, two lock stitches to be taken through the ear, then 11 stitches across the sack and secure the last ear by the usual two half hitches with an additional lock stitch through the ear, and complete with two lock or anchor stitches on the seam close to the ear. Sacks to contain about 125 pounds each; the weight of the sacks to be deducted and the sacks to become the property of the United States.

Bran to be delivered in good, strong, new burlap double sacks, containing 100 pounds each; the weight of the sacks to be deducted and the sacks to become the property of the United States.

Hay and straw to be baled, and compressed to a density of 82 cubic feet or less per ton. Each bale to be secured with at least four wires of not less than 13 gauge. The density of compression will be considered in making awards. Cylindrical bales will not be accepted.

NOTE.—In submitting proposals bidders must specify the grade of the oats, hay or straw, as indicated by these specifications, which they propose to furnish.

Forage, method of purchase.—The old method of purchasing forage by advertisement and entering into contract has been done away with during the present emergency. After a conference between large forage dealers, representatives of the Council of National Defense, and representatives of the Quartermaster Corps, it was decided to adopt the following plan for the purchase of forage:

(a) A committee to be appointed, consisting of three expert forage men, who are not interested in forage contracts, to be located in Chicago, Ill., to look after grain; a similar committee to be located in Kansas City, Mo., to look after hay and straw.

(b) The duties of these committees will be to keep in touch with prices and conditions of the principal forage markets of the country; and upon telegraphic request from purchasing officers will obtain from dealers and furnish to said purchasing officers quotations, quantities, and conditions upon which forage can be procured. Within five days after receipt of said quotations the purchasing quartermaster will make award direct to the dealer, by telegram, and at the same time, advise the committee of action taken. If, however, the purchasing officer considers that it would be more advantageous to reject said quotations, and procure forage elsewhere, he will have the authority to do so.

(c) It is also contemplated to accumulate a reserve supply of forage while the crop movement is at its height, in order to insure against adverse market conditions. This reserve stock of forage will

be increased from time to time if deemed necessary on basis of quotations furnished by said committee.

(d) As all forage has been graded, final inspection of grain will be made at primary markets by Army inspectors. Weights to be terminal market weights supervised by licensed weighmasters and their certificates will be final.

(e) All hay purchased will be accepted as to grade when the dealer furnishes official inspection certificate of the grade and the hay is approved by a Government inspector at point of shipment. However, when such hay upon arrival at destination proves to be of an inferior quality than that which appears at the door where it was inspected, the dealer shall then be responsible for such hay and not the Government. Hay that can not be graded and approved by a Government inspector at point of shipment will be subject to inspection at destination.

It is believed that this method of purchasing will result in a better understanding between contractors and mean more prompt payment for forage delivered.

Fuel.—The following amounts have been expended for the purchase of fuel during the fiscal year:

Fuel in kind.....	\$2, 309, 087. 57
Fuel for lighting plants.....	74, 864. 78
Fuel for modern batteries.....	68, 082. 90
Fuel for ice machines.....	5, 608. 38
Fuel for cold-storage plants.....	21, 106. 71
Fuel for pumping plants.....	80, 851. 96
Fuel for incinerators.....	203, 351. 09
Smithing coal, charcoal, coke, etc.....	17, 724. 95
Fuel for prison barracks.....	6, 913. 89
Total.....	2, 787, 592. 23

Mineral oil for light.—The cost of mineral oil for use as light during the fiscal year was \$42,378.28.

Fuel specifications.—The former method of purchasing coal under the British thermal unit system has been done away with during the present emergency and new specifications adopted after conferences with the Council of National Defense along lines similar to those now used by the Bureau of Indian Affairs, Department of the Interior, which are similar to those now used in the commercial world.

New specifications for coal have been adopted, which, it is believed, will result in broader competition, and will eliminate complaints from contractors in regard to delays in making payment for deliveries under contracts, due to time required in making analysis and adjustments.

Gasoline specifications.—The subject of specifications for gasoline of a standard grade which will answer all requirements of the Army is now under consideration, but said specifications have not as yet been finally decided upon.

Forage shipped to the Philippine Islands.—Oats and hay sent to the Philippine Islands from the United States during the fiscal year have been of good quality and sufficient at all times.

CLOTHING AND EQUIPAGE.

FINANCE.

Appropriation by Congress for the purchase and manufacture of clothing and equipage for the fiscal year ending June 30, 1917.

Original appropriation.....	\$20, 280, 000. 00
Deficiency appropriation.....	231, 538, 548. 64
Total.....	251, 818, 548. 64

Collections and disbursements in connection with the settlement of the clothing accounts of the enlisted men of the Army.—The following are the collections from and disbursements to the enlisted men of the Army in the settlement of their clothing accounts during the following specified periods, viz:

Collections on account of clothing drawn in excess of established allowances:

Appropriation 1916:	
From Apr. 1, 1916, to June 30, 1916.....	\$16, 715. 86
From July 1, 1916, to Mar. 31, 1917.....	81, 968. 18
Appropriation 1917:	
From July 1, 1916, to Mar. 31, 1917.....	106, 475. 13
Total collections.....	205, 159. 17

Payments to enlisted men at time of discharge from service on account of clothing undrawn:

Appropriation 1916:	
From Apr. 1, 1916, to June 30, 1916.....	\$93, 984. 21
From July 1, 1916, to Mar. 31, 1917.....	2, 762, 839. 48
Total disbursements.....	2, 856, 823. 69

Sales to militia.—The following statement shows the amount of money received from sales of clothing and equipage to the governors of various States and Territories and the commanding general of the District of Columbia Militia, under the act of Congress of January 21, 1903, during the fiscal year ending June 30, 1917.

The value of the property, amounting to \$170,967.43, has been placed to the credit of the appropriation for clothing and equipage as follows:

Arizona.....	\$19. 81	New Hampshire.....	\$126. 41
California.....	34. 61	New Jersey.....	53. 28
Colorado.....	642. 60	New York.....	3, 572. 15
District of Columbia.....	108. 24	Ohio.....	192. 36
Illinois.....	2, 122. 96	Pennsylvania.....	5, 834. 59
Indiana.....	24. 17	Rhode Island.....	16. 91
Kentucky.....	9. 46	Vermont.....	47. 11
Maine.....	45. 31	Virginia.....	81. 47
Maryland.....	745. 08	West Virginia.....	1. 21
Massachusetts.....	157, 279. 79		
North Carolina.....	9. 91	Total.....	170, 967. 43

Sales of clothing and equipage to various departments and bureaus of the Government.—Under the provisions of paragraph 671, Army Regulations, and by special authority of the Secretary of War, there were sold during the fiscal year ending June 30, 1917, to various departments and bureaus of the Government, clothing and equipage supplies

to the value of \$50,320.45, as specified in the following statement. The amounts have been or will be placed to the credit of the appropriation for clothing and equipage.

Department of Agriculture.....	\$13. 11	Navy Department.....	\$10, 593. 98
Engineer Department.....	3, 834. 86	Panama Canal.....	73. 68
Gettysburg National Park Commission.....	6. 28	Supply Division, War Department.....	75. 42
Bureau of Insular Affairs.....	141. 78	Treasury Department.....	277. 48
Interstate Commerce Commission.....	1, 963. 22	Signal Corps.....	148. 32
Department of the Interior...	298. 44	State Department.....	5. 64
Department of Justice.....	251. 07	Vicksburg Military Park Commission.....	68. 16
Medical Department.....	14, 268. 29		
Ordnance Department.....	18, 295. 72	Total.....	50, 320. 45

Sales of clothing and equipage to military schools and colleges.—The act of Congress approved July 17, 1914, authorizes the sale of clothing and equipage to military schools and colleges at which officers of the Army are detailed as professors of military science and tactics. There were sold during the fiscal year ending June 30, 1917, supplies to the value of \$86,018.62, which sum has been credited to the appropriation for clothing and equipage.

Sales at auction.—The sum of \$29,803.35 was realized from sales of condemned and unserviceable articles of clothing and equipage and cuttings during the last fiscal year. The expenses connected with making these sales, and which were paid from the gross receipts, amounted to \$48.80, leaving a balance of \$29,754.55, which under the law was covered into the Treasury of the United States and credited to "Miscellaneous receipts."

Purchase of supplies through the Council of National Defense for the Quartermaster Corps.—The Secretary of War has approved a certain list of articles which are to be purchased exclusively through the Council of National Defense. This list was prepared by the council and includes woolens, cotton, leather, rubber goods, etc. All purchasing quartermasters were notified that they were not to place any orders for any of these articles excepting in case of emergency where they were required for immediate delivery.

Whenever articles on this list are required for the Army, the following is the method of procedure in obtaining same: A letter is written to the Council of National Defense, stating the quantity of each required and requesting that the depot quartermaster at Philadelphia be advised as to where these articles may be obtained, price, and rates of deliveries. The Council then proceeds to obtain quotations, either by submission of formal bids or informal inquiries. The recommendations of the council are then forwarded to the depot quartermaster, Philadelphia, Pa., who places orders direct with the contractor, and copies of all orders are forwarded to this office.

Purchases, manufactures, and issues of clothing, equipage, and materials, and quantities remaining on hand June 30, 1917.—The accompanying statement shows in detail the quantities of clothing, equipage, and materials purchased and manufactured during the fiscal year ending June 30, 1917; the quantities issued to the Army and the militia, and quantities remaining on hand June 30, 1917, to which special attention is invited.

Quantities of clothing and equipage and materials purchased and manufactured during the fiscal year ending June 30, 1917, quantities issued to the Army and the militia, and quantities remaining on hand June 30, 1917.

Articles.	Received.			Issued.			On hand at depots on June 30, 1917 (exclusive of field supply depot stock).
	Pur- chased.	Manu- factured by Quarter- master Corps.	Total.	To the Army.	To the militia.	Total.	
CLOTHING.							
Aprons:							
Bakers and butchers.....	3,000	7,900	10,900	7,333	-----	7,333	9,165
Cooks.....	-----	15,886	15,886	15,724	-----	15,724	7,548
Bands, cap.....	-----	7,485	7,485	19,691	80	19,771	47,154
Belts, waist.....	1,766,000	393,919	2,159,919	674,896	33,798	708,694	81,277
Boots, rubber, half hip... pair..	8,393	-----	8,393	-----	-----	-----	7,576
Breeches:							
Cotton, olive-drab..... do.....	3,920,609	266,690	4,187,299	1,462,063	31,713	1,493,796	221,406
Woolen, olive-drab..... do.....	2,841,496	247,810	3,089,306	790,189	28,834	819,023	100,792
Caps:							
Bakers and cooks.....	2,500	18,110	20,610	12,938	-----	12,938	8,846
Dress (without bands).....	1,947	-----	1,947	24,461	80	24,541	12,675
Service, wool, olive-drab.....	101,580	-----	101,580	73,271	1	73,272	60,425
Winter.....	-----	9,158	9,158	16,136	1,502	17,638	20,044
Coats:							
Denim.....	147,240	42,620	189,860	163,992	5,328	169,320	5,264
Dress.....	-----	2,997	2,997	16,547	80	16,627	32,666
Cotton, service, olive-drab.....	1,901,435	88,229	1,989,664	582,381	23,319	605,700	35,083
Woolen, service, olive-drab.....	2,132,530	94,749	2,227,279	543,072	23,372	566,444	408,708
White.....	-----	5,898	5,898	-----	-----	-----	2,005
Collars.....	7,000	-----	7,000	183,493	-----	183,493	268,457
Cords:							
Breast.....	4,869	-----	4,869	10,622	160	10,782	38,296
Hat.....	3,267,765	-----	3,267,765	358,100	39,281	397,381	163,781
Hat, tying.....	17,259	-----	17,259	5,905	8,695	14,600	54,151
Cravats.....	157,780	-----	157,780	196,742	-----	196,742	15,816
Drawers:							
Summer.....	6,994,000	-----	6,994,000	2,748,129	84,097	2,832,226	196,141
Winter.....	6,834,369	-----	6,834,369	1,128,265	23,230	1,151,495	451,567
Gauntlets, winter..... pair..	5,300	-----	5,300	-----	-----	8,785	7,134
Gloves:							
Cotton, white..... do.....	53,200	-----	53,200	98,813	-----	98,813	566,126
Horsehide, yellow..... do.....	64,000	-----	64,000	98,254	194	98,448	5,239
Riding..... do.....	844,111	-----	844,111	93,113	3,295	96,408	65,026
Woolen, olive-drab..... do.....	2,209,353	-----	2,209,353	374,805	12,583	387,388	85,727
Hats:							
Denim.....	119,500	-----	119,500	35,292	7,149	42,441	3,413
Oilskin.....	180	-----	180	540	-----	540	1,862
Service.....	3,358,984	-----	3,358,984	945,391	29,232	974,623	166,902
Jackets, oilskin.....	156	-----	156	588	-----	588	1,380
Laces:							
Breeches..... pair..	2,486,920	-----	2,486,920	137,795	5,343	143,138	245,298
Leggin..... do.....	2,331,970	-----	2,331,970	965,247	27,493	992,740	213,558
Shoe..... do.....	8,841,680	-----	8,841,680	3,267,551	79,995	3,347,546	1,256,639
Leggins:							
Canvas, foot..... do.....	1,982,118	-----	1,982,118	1,103,320	34,169	1,137,489	182,325
Canvas and leather, mount- ed..... pairs.....	498,131	-----	498,131	120,235	899	121,134	25,033
Overcoats, olive-drab.....	2,153,894	50,000	2,203,894	246,855	14,031	260,886	74,744
Overshoes, arctic..... pairs.....	4,256	-----	4,256	9,970	1,504	11,474	46,233
Pants, oilskin.....	-----	-----	-----	-----	-----	-----	-----
Ponchos.....	1,754,432	-----	1,754,432	406,132	16,502	422,634	54,033
Shirts, flannel, olive-drab.....	1,199,447	1,816,676	2,516,123	1,733,743	55,064	1,788,797	56,215
Shirts, chambray.....	13,480	-----	13,480	2,369	-----	2,369	-----
Shoes:							
Gymnasium..... pairs.....	24,538	-----	24,538	37,297	-----	37,297	24,407
Russet..... do.....	4,449,358	-----	4,449,358	1,754,796	65,945	1,820,741	460,317
Field..... do.....	2,533,847	-----	2,533,847	87,357	-----	87,357	4,533
Slickers.....	1,004,899	244	1,005,143	116,050	2,202	119,052	51,530
Stockings:							
Cotton..... pairs.....	5,216,286	-----	5,216,286	2,702,207	7,259	2,709,466	587,814
Woolen, heavy weight, pairs.....	18,000	-----	18,000	47,326	19,566	66,892	42,324
Woolen, light weight, pairs.....	12,137,816	-----	12,137,816	3,885,619	100,732	3,986,351	714,090
Suspenders.....	6,450	-----	6,450	22,279	-----	22,279	4,182
Sweaters (Alaskan).....	130	-----	130	-----	-----	-----	72
Taps, identification aluminum.....	1,648,001	-----	1,648,001	628,130	23,108	651,238	73,515
Trousers:							
Blue denim.....	191,660	38,500	230,160	166,249	3,305	169,554	29,733
Woolen, olive-drab.....	7,000	51	7,051	2,773	255	3,028	4,129
Undershirts:							
Cotton.....	7,852,387	-----	7,852,387	3,627,835	59,552	3,687,387	554,189
Woolen.....	6,334,483	-----	6,334,483	990,519	23,224	1,013,743	445,840

Quantities of clothing and equipage and materials purchased and manufactured during the fiscal year ending June 30, 1917, etc.—Continued.

Articles.	Received.			Issued.			On hand at depots on June 30, 1917 (exclusive of field supply depot stock).
	Pur- chased.	Manu- factured by Quar- termas- ter Corps.	Total.	To the Army.	To the militia.	Total.	
EQUIPAGE.							
Arrestors, spark	358,006		358,006	25,199	500	25,699	34,087
Axes	164,085		164,085	142,952	971	143,923	73,464
Bags:							
Barrack	359,800	195,155	554,955	218,332	171	218,503	47,652
Recruit clothing	30,000	4,847	34,847	31,473		31,473	5,613
Surplus kit	45,021	14,450	59,471	30,107	1,202	31,309	3,386
Bars, mosquito, single	1,896,249		1,896,249	342,165	12,721	354,886	34,580
Basins, canvas	3,300	825	4,125	371		371	1,479
Bedsteads, iron, single	35,300		35,300	13,378	4	13,380	921
Blankets, wool	4,340,352		4,340,352	755,092	39,062	794,154	1,101,151
Brassards	42,381	3,749	46,130	19,918	145	20,063	11,612
Brooms, corn	574,315		574,315	274,110	139	274,249	61,330
Brushes, scrubbing	423,246		423,246	171,987	101	172,088	158,568
Buckets, canvas	3,300	802	4,102	1,044	77	1,081	556
Bugles with slings	32,430		32,430	6,249	421	6,640	117
Cases, pillow	250,640		250,640	300,682		300,682	39,006
Chairs, barrack	22,000		22,000	20,560		20,560	582
Cots	1,829,960		1,829,960	459,430	16,375	475,805	11,877
Covers:							
Cot	168,650	51,766	220,416	155,656	2,005	157,661	11,530
Folded, ward, tent		1,526	1,526	2,865	2	2,867	745
Mattress	179,990	49,230	229,220	160,340		160,340	3,992
Desks, field:							
Large	2,970		2,970	298		298	33
Small	7,737		7,737	2,509	252	2,761	500
Files, tent:							
Hospital, tropical		312	312	976		976	354
Pyramidal				1,221	117	1,338	141
Storage	675	367	1,042	1,340	6	1,346	181
Wall, large	33,723	7,869	43,592	4,693	34	4,727	5,257
Wall, small	126,779	2,437	129,216	10,763	322	11,085	1,604
Handles:							
Shovel, long	1,500		1,500	2,871		2,871	128
Shovel, short	1,400		1,400	6,355		6,355	395
Spade	2,260		2,260	4,361		4,361	394
Hatchets (without helms)	1,500		1,500	5,289	8	5,297	849
Headnets, mosquito	3,895		3,895	125,355	55	125,410	116,221
Helves:							
Ax	144,212		144,212	82,606	985	83,593	68,052
Hatchet	7,000		7,000	6,746	8	6,754	8,271
Pickax	113,418		113,418	45,460	708	46,168	58,965
Lockers, trunk	63,100		63,100	38,081	14	38,095	15
Mattresses	126,418		126,418	124,583		124,583	1,563
Pickaxes	113,014		113,014	62,570	762	63,332	45,770
Pillows	128,865		128,865	106,273		106,273	43,829
Pins, tent:							
Large	13,662,754		13,662,754	3,804,482	85,118	3,889,600	1,072,536
Small	12,942,200		12,942,200	4,281,277	145,516	4,426,793	916,652
Shelter	13,554,511		13,554,511	2,321,821	98,355	2,420,176	67,856
Pouches, music, olive-drab	22,240	7,091	29,331	5,666		5,666	1,623
Receivers, card for bedsteads	27,000		27,000	33,378		33,378	28,100
Rolls:							
Bedding	2,001	467	2,468	3,131	320	3,451	2,888,884
Clothing		141	141	2,507	114	2,621	359
Sacks:							
Bed	376,027	629,503	1,005,730	699,776	10,741	710,517	216,704
Pillow		6,020	6,020	9,151		9,151	1,452
Screens, canvas, latrine	30,427	317	30,744	3,856		3,856	996
Sheets, bed	572,330		572,330	371,939		371,939	5,718
Shovels:							
Long handled	2,400		2,400	5,752		5,752	5,670
Short handled	118,816		118,816	64,166	810	64,976	121,406
Slings, bugle	2,131		2,131	1,359		1,359	7,533
Spades	33,648		33,648	12,902	167	13,069	20,624
Stands, music	21,828		21,828	7,183		7,183	118
Sticks, size, shoe	18,409		18,409	4,750	214	4,964	7,762
Stoves, tent	233,048		233,048	211,147	522	211,669	5,804
Stovepipe, tent:							
Elbows	50,442		50,442	24,092	500	24,592	20,638
Joints	1,153,692		1,153,692	424,345	25,110	449,455	237,394
Stretchers, shoe	14,789		14,789	5,434	302	5,736	5,779
Tape, foot measure	16,002		16,002	5,403	247	5,650	2,182

Quantities of clothing and equipage and materials purchased and manufactured during the fiscal year ending June 30, 1917, etc.—Continued.

Articles.	Received.			Issued.			On hand at depots on June 30, 1917, (exclusive of field supply depot stock).
	Pur- chased.	Manu- factured by Quar- ter- master Corps.	Total.	To the Army.	To the militia.	Total.	
EQUIPAGE—continued.							
Tents:							
Hospital, tropical.....		94	94	663		663	39
Hospital, ward.....	12	466	478	465		465	416
Pyramidal.....	96,707	27,301	124,008	42,458	2,101	44,559	1,735
Shelter halves.....	1,391,689	124,720	1,519,409	268,186	17,831	286,017	33,812
Storage.....	600	91	691	1,030	15	1,045	14
Wall, large.....	7,999	1,430	9,429	3,540	39	3,579	806
Wall, small.....	33,882	1,589	35,471	8,387	341	8,728	1,055
Whistles and chains:							
Officers (Kinglet).....	21,550		21,550	12,064	82	12,146	6,511
Noncommissioned officers (Acme).....	118,046		118,046	30,611	2,316	32,927	7,248
Siren.....	21,550		21,550	472		472	1,728
Poles, tent:							
Latrine screen, horizontal, 7 feet.....	27,600		27,600	3,298		3,298	2
Latrine screen, horizontal, 9 feet.....	55,200		55,200	5,142		5,142	
Latrine screen, upright, 7 feet.....	193,200		193,200	18,358		18,358	1,356
Hospital, tropical, ridge.....	1,090		1,090	954		954	269
Hospital, tropical, upright.....	2,764		2,764	1,721		1,721	690
Hospital, tropical, wall.....	11,554		11,554	3,472		3,472	
Hospital ward, upright.....	6,647		6,647	1,068		1,068	136
Hospital ward, wall.....	2,500		2,500	2,376		2,376	
Storage, ridge.....	3,016		3,016	1,161	11	1,172	503
Storage, upright.....	9,608		9,608	3,222	22	3,244	4,618
Storage, wall.....	24,778		24,778	9,254	48	9,302	
Wall, large, ridge.....	10,900		10,900	2,548	35	2,583	1,781
Wall, large, upright.....	22,075		22,075	9,081	70	9,151	2,963
Wall, small, ridge.....	50,386		50,386	9,666	269	9,935	9,383
Wall, small, upright.....	98,072		98,072	20,129	538	20,667	20,985
Pyramidal.....	313,913		313,943	93,716	1,831	95,577	26,046
Shelter.....	2,849,675		2,849,675	508,477	17,678	526,155	85,710

Materials purchased.

Bobinette:		
36-inch.....yards..	9,760,256	
52-inch.....do...	3,491,159	
72-inch.....do...	7,642,561	
Buttons:		
Coat, bronze, large, gross.....	176,479	
Coat, bronze, small, gross.....	320,287	
Coat, gilt, large.....gross..	172,000	
Overcoat, bronze do.....	118,322	
Shirt, olive-drab do.....	191,291	
Cloth:		
Facing, scarlet.....yards..	600	
Facing, buff.....do...	240	
Facing, olive-drab do.....	14,024	
Cotton, olive-drab do.....	34,213,543	
Cotton twill, for overcoat lining.....yards..	3,934,766	
Waterproofed.....do...	190,095	
Denim, blue.....do...	2,921,334	
Drilling, unbleached yds.....	22,476,565	
Duck:		
Khaki, 8-ounce, 28½-inch, yards.....	12,632,814	
Khaki, 12.4-ounce, 29½-inch.....yards..	28,693,772	
Khaki, No. 4, 42-inch, yards.....	860,000	
Gray, No. 8, 34-inch yds.....	622,600	
Bleached, 6½ to 7-oz. yds.....	515,500	

Duck—Continued.		
Unbleached, 40-inch, 8 to 9 ounce.....yards..	313,007	
Shelter tent.....do...	10,478,623	
Legging.....do...	214,500	
White, 28-inch, 8-ounce, yards.....	42,000	
Unbleached, 30-inch, No. 8.....yards..	4,859	
Unbleached, 34-inch, No. 8.....yards..	65,000	
White, unbleached, 22-inch, No. 8.....yards..	20,000	
Flannel, canton.....do...	75,000	
Flannel, shirting, olive-drab, yards.....	11,745,061	
Jeans, corset.....yards..	1,482,188	
Meltons:		
16-ounce.....yards..	12,537,465	
30-ounce.....do...	8,164,929	
Padding, canvas.....do...	2,138,660	
Serge, luster wool.....do...	4,325,842	
Shirting, cotton.....do...	756,000	
Silesia, olive-drab.....do...	5,380,946	
Tent plates and chains.....	443,574	
Tent shields.....	9,151	
Tent slips, No. 2.....	8,806,380	
Tent slips, No. 3.....	2,242,852	
Tent squares.....	453,115	

Issues to militia.—There were issued to the governors of the several States and Territories and to the commanding general of the District of Columbia Militia, for use of the Organized Militia, during the fiscal year ending June 30, 1917, clothing and equipage supplies to the total value of \$1,247,108.59 of which \$31,881.88 were on account of issues under the act of May 27, 1908, and \$32,718.62 under the act of June 22, 1906, amending section 1661, Revised Statutes, as shown in the following detailed statement, viz:

State or Territory.	Act of May 27, 1908.	Act of June 22, 1906, amending section 1661, Revised Statutes.	Act of Aug. 29 and Apr. 17, 1917, for arming, etc., National Guard.	Act of Aug. 29, 1916, for arms, etc., field service.	Total.
Arkansas.....				\$4,365.97	\$4,365.97
California.....			\$5,115.09	46,016.24	51,131.33
Connecticut.....		\$74.58	13,046.29	57,478.99	70,599.86
District of Columbia.....		51.42	127.72	7,500.72	7,679.86
Florida.....			2,552.23	7,792.86	10,345.09
Georgia.....				6,912.13	6,912.13
Hawaii.....			1,755.82	136,064.88	137,820.70
Illinois.....				30,070.83	30,070.83
Indiana.....		4.64			4.64
Kansas.....		7,971.67		20,368.65	28,340.32
Louisiana.....		21,182.84			21,182.84
Maine.....			8,515.91	31,735.01	40,250.92
Maryland.....	\$2,632.27		2,297.95	65,839.72	70,769.94
Massachusetts.....		2,238.95	29,771.00	105,767.01	137,776.96
Michigan.....		204.44		14,299.30	14,503.74
Mississippi.....				1,377.38	1,377.38
Missouri.....		601.61		19,215.00	19,816.61
Nebraska.....			2.20		2.20
New Hampshire.....				5,516.98	5,516.98
New Jersey.....			6,148.80	38,051.14	44,199.94
New York.....	2,642.07		117,636.91	111,457.76	231,736.74
North Carolina.....			76.63	12,144.33	12,220.96
Ohio.....			13,051.37	51,876.25	64,927.62
Oregon.....		45	4,305.78	33,810.88	38,117.00
Pennsylvania.....				1,646.84	1,646.84
Rhode Island.....		93.81	18,030.68	31,276.40	49,400.89
South Carolina.....	13,203.40	294.21	2,142.31	7,489.60	23,129.52
Texas.....				8,263.32	8,263.32
Virginia.....	2,634.30		7,253.90	18,794.52	28,682.72
Washington.....	10,760.84		9,592.92	47,439.49	67,802.25
Wisconsin.....			138.77	18,373.63	18,512.40
Total.....	31,881.88	32,718.62	241,562.28	940,945.81	1,247,108.59

Clothing allowance for enlisted men.—Based upon special field inspections of the National Guard and Organized Militia on duty in the Southern Department having reference to the system of issuing clothing to the enlisted men of the Army and keeping and settling their clothing accounts, the Chief of the War College division on May 17, 1917, submitted a memorandum to the Chief of Staff, containing the views of the Chief of the Militia Bureau to the effect that the present system has been found unsatisfactory, due partially to a lack of familiarity on the part of National Guard officers, but principally on account of its being cumbersome and time consuming.

The papers of the case were submitted to the Judge Advocate General who, on May 23, 1917, rendered an opinion to the effect that the determination of whether legislation is necessary to authorize the abolishment of specific clothing allowances in the Army or any part thereof, depends upon the meaning of section 1296, Revised Statutes, which provides that the President may prescribe the

uniform of the Army and quantity and kind of clothing which shall be issued annually to the troops of the United States Army, also of section 1302 which provides for the settlement of clothing accounts of the enlisted men. He expressed the opinion that the clothing allowance was never intended as a compensation to the enlisted men, the purpose of establishing such an allowance no doubt being to establish the amount which the Government should be expected to expend for the clothing of the soldier; and, further, that it was entirely within the President's authority to prescribe that the quantity of clothing to be issued shall be the amount necessary to provide him with what shall be adequate for the service upon which he is engaged; that the duty of fixing the allowance is by statute laid upon the President or in his name by his proper representative.

On the 23d of May, 1917, the Quartermaster General was directed by the Chief of Staff to submit draft of a general order which would be in conformity with the opinion expressed by the Judge Advocate General. These directions were complied with on May 30, 1917.

On July 11, 1917, The Adjutant General by General Orders, No. 89, War Department, 1917, promulgated the following to the Army, to take effect July 15, 1917, viz:

1. That by direction of the President during the period of the existing emergency, a soldier's clothing allowance will be the quantity of clothing necessary and adequate for the service upon which he is engaged.

2. That organization commanders will be held responsible for a rigid economy in issues and for the proper equipment of the enlisted men of their commands, with the allowances prescribed as equipment "C" in table for quartermasters' supplies.

3. That articles lost or destroyed through neglect will be charged on the pay roll against the men responsible therefor.

4. Provision is made for the repair, if practicable, of such articles as have been damaged or rendered unserviceable and replacing of same.

5. That the clothing allowance of retired enlisted men, as established by law, be as given in paragraph 137, Army Regulations.

Renovating and repairing clothing and equipage, including shoes.—The clothing money allowance for enlisted men, as stated in the foregoing, having been abolished, the Quartermaster General recommended the publication of a general order instructing the respective department quartermasters under direction of department commanders to make arrangements for disinfecting, cleaning, repairing, pressing, and repacking the uniform clothing in the immediate vicinity of posts, camps, or cantonments or by collecting articles and sending them to a general depot of the Quartermaster Corps designated for the purpose, when the facilities are not available in the immediate vicinity of the post or station. It was also recommended that the proposed order provide for the reissue of the clothing, after renovation and repair. The recommendation of the Quartermaster General has been published by The Adjutant General in General Orders No. 97, 1917, War Department.

Realizing that the great demand for all kinds of leather required in the manufacture of equipment for the Army of the United States including the great quantities of shoes, would bring about a scarcity in this particular commodity, this department considered the advisability of taking steps for half-soling and repairing such of the shoes of the enlisted men as may become unserviceable, believing that the introduction of this system would result in considerable economy and saving in shoes.

Several shoe repairing machines and necessary half-soles and shoe findings were procured and supplied to the Southern Department for trial by troops.

Recommendation was also made to The Adjutant General that electrically propelled machines be installed at each of the recruit depots for the purpose of half-soleing the shoes of the enlisted men and recruits.

On the 28th of June, 1917, The Adjutant General advised this office that all department commanders in the United States had been instructed to cause requisitions to be submitted for one Crowe Nailer or similar machine for half-soleing shoes at the rate of one machine for each regiment of Infantry, Cavalry, Field Artillery, and Engineers of the Regular Army and National Guard when called or drafted into the service of the United States and on the same basis for Coast Artillery under orders for field service. Three cobblers were also authorized as an addition to the enlisted strength of each supply company of Infantry, Cavalry, and Field Artillery and to each regimental headquarters company of Engineers to make repairs with the machine at Government expense of all enlisted men's shoes. Divisions to be raised in divisional areas to be supplied on requisitions approved by division commanders on depots to be designated by the Quartermaster General.

A copy of the above communication was furnished to each depot Quartermaster on July 9, 1917, with directions to take steps to provide a supply of Crowe Nailers or similar machines for issue based on the number of organizations in the territory for which the respective depots are designated and to provide also for issue with the machines the necessary nails.

The Council of National Defense has been requested by this office to take steps to provide a supply of half-soles. The plan so far inaugurated is of a temporary character, and intended only to supplement a larger plan for renovating and repairing shops which will be installed at depots, posts, cantonments, etc., when sufficient data shall have been obtained on which to base the business of installing a factory repair shop or salvage plant. In connection with these repair shops, it is intended to utilize the facilities of the repair shops already installed at the United States Disciplinary Barracks branches.

Equipment of the organizations known as home guards.—The act of Congress, approved June 14, 1917, provides for the issue to the governors of the several States and Territories and Commissioners of the District of Columbia for use of organizations known as home guards, having the character of State police and constabulary, or other State troops or militia, such rifles and ammunition therefor, cartridge belts, haversacks, canteens, in limited amounts as available supplies will permit.

Several applications for uniform clothing have been received from several organizations, but as the act quoted provided only for the issue of ordnance property, the uniforms desired could not be furnished. The act of Congress of June 3, 1916 (sec. 125), contains a proviso entitled "Protection of the uniform," making it unlawful with certain specified exceptions for any person not an officer or enlisted man of the Army, Navy, or Marine Corps, to wear the duly prescribed uniform or any distinctive part of such uniform or a uniform any part of which is similar to a distinctive part of such uni-

form. The principal exceptions referred to in the act are the National Guard, Boy Scouts, the Naval Militia or such other organizations as the Secretary of War may designate.

This office, in compliance with direction of the Secretary of War, submitted a memorandum containing a list of such articles of uniform, to be worn by the organizations known as home guards, the wearing of which would not constitute a violation of section 125 of the act of Congress of June 3, 1916, and it is understood that action suggesting that this uniform be adopted by said organization has been taken.

Service breeches.—Service conditions having demonstrated that the service breeches prescribed for officers, as well as those issued to the enlisted men of the Army, should be made more comfortable by increasing the width across the knee. A pair of breeches which it was thought would overcome the defect referred to was submitted to the Chief of Staff for consideration.

The improvements, it was pointed out, consist in an increased length from crotch to knee and increasing width at knee, thereby giving greater ease when riding or when sitting down, and also providing a reinforcement extending over and about 1 inch above the knee, placing it diagonally from the inside seam to the outer seam, extending same to the opening of slash, then diagonally toward the inside seam to its proper width at the bottom. As the shape of the proposed reinforcement interfered with the position of the slash on the present breeches, it was found necessary to change the run of the side seam and make the opening in the side seam. The advantages of these changes are as follows:

(a) Preventing breeches from ripping across front of knee when partly worn out.

(b) Increasing length of serviceability from three to six months by placing reinforcement over knee.

(c) Protecting knee against sharp stones and pricklers when kneeling and when riding through brush. The reinforcement will add greater comfort, besides the extra thickness will prevent wrinkling of breeches on inside of knee, a great advantage while riding.

(d) The patch will prevent the material across the knee from wearing out and avoid splitting over the knee when in position of "full bend."

(e) It will permit of the issue of only one kind of breeches to both foot and mounted troops, being adapted to both arms of the service.

(f) Economy in increasing the wearing qualities of the garments, as the additional cost of the patch on the foot breeches, if any, would be more than offset by the saving made through the increased life of the breeches.

On June 20, 1917, the Secretary of War approved the adoption of the breeches as submitted. All depot quartermasters having charge of the manufacture of clothing have been instructed so that all the breeches to be made in the future will conform to the modifications stated. With this in view these officers have been directed to enter into supplemental agreement with the respective contractors furnishing breeches to the Quartermaster Corps. In order to absorb the breeches of the present pattern, recommendation has been made to The Adjutant General that the several department commanders

be informed that the issue of the present style of foot breeches to all dismounted troops be continued as long as available and that whenever any particular sizes become exhausted, mounted breeches be issued in lieu thereof.

Leggings.—The leather leggings heretofore issued to the mounted service have not given the expected satisfaction. It has therefore been decided to substitute for the same a legging made of duck, same as for foot troops, having a reinforcement of leather. Standards and specifications have been adopted and purchases and issues are made in accordance therewith.

Leather caps.—Upon representation of the department commander, Southern Department, that experience had demonstrated the necessity of furnishing enlisted men of the motorcycle detachments and companies while riding a motorcycle, especially under field service conditions, with suitable caps, this office procured a sample which, in the opinion of the officer referred to would meet the requirements of the service. After experimental trial it was found that caps of this particular make are suitable for the purpose for which intended, and upon submission of the case to the Chief of Staff, the recommendations of this office to adopt the same were approved by the Secretary of War. Standard samples and specifications have been procured and furnished to the general depots and will govern in making purchases wherever required.

Sweaters.—As indicated in the last annual report of the supplies division, the purchase of sweaters for the enlisted men has been discontinued and all on hand have been issued.

Aviation clothing.—Up to the present time, such articles of aviation clothing as were required for the equipment of aviators, have been purchased by the Quartermaster Corps under the supervision of the Chief Signal Officer of the Army.

While specifications for the various articles constituting the necessary equipment and which are to govern in making future purchases, have only recently been adopted, they will be embodied in the regulations and specifications for the uniform of the Army now being revised and about to be published by The Adjutant General. Request for sets of standard samples conforming to these specifications has been made upon the Chief Signal Officer and pending action the question of whether the Quartermaster Corps or the Signal Corps should have charge of future purchases, is now under consideration.

Band instruments.—The records of this office show that allotments for the purchase or repair of band instruments, amounting to \$785,377.97, were made to the several depots of the Quartermaster Corps and to the department quartermasters of military departments during the fiscal year ending June 30, 1917.

These purchases were necessary in order to equip the bands of the National Guard mustered into the Federal service and ordered to duty on the Mexican border, also for the accumulation of working stock of instruments so that the bands of the National Army, now in process of organization, may be promptly equipped.

National memorial celebration and peace jubilee at Vicksburg, Miss.—The act of Congress approved September 8, 1916, making appropriations for supplying deficiencies in appropriations for the fiscal year

ending June 30, 1916, and prior fiscal years, and for other purposes, contains an appropriation of \$150,000 for expenses within the limit of the appropriation, in connection with the celebration to be held at Vicksburg by the survivors of the Armies of the Tennessee and of the Mississippi who participated in the Battle of Vicksburg in July, 1863. Under this act the Secretary of War is authorized and directed to complete all arrangements before October 14, 1917, and that all camp equipment, including tents, supplies, and rations, shall be fully ready for use by that date. Requisitions for the estimated number of tents, cots, blankets, pillows, mosquito bars, and other supplies needed have been received at this office. The attendance will, it is estimated, be about 10,000 veterans.

Instructions have been given to the depot quartermaster at Jeffersonville, Ind., to assemble the required supplies at said depot and have them shipped in time to reach Vicksburg not later than October 1, it being understood that, while the blankets and tentage are not now available, they may be by the time they are required. Ten per cent of the cost will be paid from the appropriation to the Quartermaster Corps to cover renovation, repairs, etc.

Loan of flags for use during the inaugural ceremonies.—Under the provisions of the joint resolution of Congress, approved February 9, 1917, authorizing the Secretary of War to loan to the committee on inaugural ceremonies such flags, ensigns, etc., as may be suitable and could be spared for the purpose, there were turned over to said committee 4 garrison, 25 post, and 390 storm flags, to the value of \$1,612.88, satisfactory bond for safe return having been executed by the chairman of the committee. There were also loaned to several executive departments and bureaus a number of flags required in decorating Government buildings. With the exception of a few flags which were injured while in use, the damage to same having been paid for, all have been returned.

Loan of equipage for use during the reunion of the Confederate Veterans Association.—Congress by public resolution No. 50, Sixty-fourth Congress, approved February 26, 1917, authorized the Secretary of War to loan flags and other supplies for use during the Twenty-second annual reunion of the Confederate Veterans Association, in the city of Washington during the first week in June last. Notwithstanding the fact that the Department, due to the prevailing conditions, found itself greatly embarrassed in meeting the requirements of the association, it was made possible to divert from the purchases then being made for the Army the necessary steel cots, blankets, and such flags as could be spared for a few days, bond for the value of the supplies being given as required by the public resolution quoted. The property was promptly returned.

Loan of equipage for use of encampment of Confederate veterans at Gadsden, Ala.—Under the authority of the Secretary of War of September 30, 1916, there were loaned to the Alabama State Encampment of Confederate Veterans, held at Gadsden, Ala., for use on October 11 last, 300 each cots and blankets. The transportation charges were paid by the chairman of the committee in charge of the encampment.

Reserve clothing and equipage, etc.—When the National Guard was mustered into the Federal service, under call of the President of June 18, 1916, it was found that paragraph 455a, Army Regulations, 1913, had not been generally complied with, in that many States were deficient in equipment. The regulation referred to is as follows:

Governors of States and Territories and the commanding general of the District of Columbia Militia are required at all times to keep on hand, either at the various company armories or in suitable storehouses, a sufficient supply of arms, uniforms, and equipment to completely equip for the field the minimum number of men prescribed by the President for each organization, so that on being called into the service any organization will be completely equipped from the stores on hand in the State, Territory, or the District of Columbia without calling on the War Department for assistance.

The muster in of these organizations developed shortages in equipment amounting to \$4,192,064.46 based on peace strength and \$6,940,447.36 for equipment to bring them to war strength, or a total deficit of \$11,132,511.82 in peace and war strength requirements combined.

There was in stock at the Philadelphia depot, as a reserve, in addition to the stock at that and other depots, for current requirements, clothing, and equipage amounting to \$5,258,547.23, and materials for the manufacture of clothing and tentage amounting to \$1,016,725, a total of \$6,275,272.23, or \$4,857,239.59 less than required to equip the organizations called into the Federal service at war strength.

There was some delay in completely equipping these troops with the full allowances of clothing, but all were satisfactorily equipped in a comparatively short time.

The records of the office show that the department endeavored to secure funds from time to time sufficient to acquire a reasonable reserve of cloth and materials for the manufacture of clothing, but appropriations were not made in accordance with the estimates as originally submitted. The following table shows the efforts of the Quartermaster General to secure funds for the accumulation of a suitable reserve and the amounts finally appropriated:

Fiscal year.	Current requirements.	Reserve.	Total.
1909.			
Estimated for Quartermaster General's Office.....	\$6,000,000.00	\$2,500,000.00	\$8,500,000.00
Approved by War Department.....	5,335,126.14	2,500,000.00	8,335,126.14
Appropriated.....	5,725,126.14	1,274,873.86	7,000,000.00
Appropriation less than original estimate.....	274,873.86	1,225,126.14	1,500,000.00
1910.			
Estimated for by Quartermaster General's Office.....	5,450,384.39	1,549,615.61	7,000,000.00
Approved by War Department.....	5,450,384.39	1,549,615.61	7,000,000.00
Appropriated.....	5,450,384.39	1,549,615.61	7,000,000.00
Appropriation less than original estimate.....			
1911.			
Estimated for by Quartermaster General's Office.....	5,505,345.36	1,494,654.64	7,000,000.00
Approved by War Department.....	5,505,345.36	494,654.64	6,000,000.00
Appropriated.....	5,505,345.36	494,654.64	6,000,000.00
Appropriation less than original estimate.....		1,000,000.00	1,000,000.00

Fiscal year.	Current requirements.	Reserve.	Total.
1912.			
Estimated for by Quartermaster General's Office.....	\$5,000,000.00	\$332,041.76	\$5,332,041.76
Approved by War Department.....	4,569,229.91	332,041.76	4,901,271.67
Appropriated.....	4,569,229.91	332,041.76	4,901,271.67
Appropriation less than original estimate.....	430,770.09	.....	430,770.09
1913.			
Estimated for by Quartermaster General's Office.....	5,000,000.00	2,051,899.34	7,051,899.34
Approved by War Department.....	5,000,000.00	431,700.00	5,431,700.00
Appropriated.....	5,000,000.00	.....	5,000,000.00
Appropriation less than original estimate.....	.....	2,051,899.34	2,051,899.34
1914.			
Estimated for by Quartermaster General's Office.....	5,800,081.80	1,596,993.70	7,396,925.00
Approved by War Department.....	5,756,041.80	598,893.70	6,354,935.00
Appropriated.....	5,756,041.21	244,958.79	6,000,000.00
Appropriation less than original estimate.....	44,990.09	1,351,934.91	1,396,925.00
1915.			
Estimated for by Quartermaster General's Office.....	6,500,000.00	2,906,064.45	9,406,064.45
Approved by War Department.....	6,274,610.05	225,389.95	6,500,000.00
Appropriated.....	6,274,610.05	225,389.95	6,500,000.00
Appropriation less than original estimate.....	225,389.95	2,680,674.50	2,906,064.45
1916.			
Estimated for by Quartermaster General's Office.....	6,900,000.00	225,000.00	7,125,000.00
Approved by War Department.....	6,700,000.00	200,000.00	6,900,000.00
Appropriated.....	6,693,000.00	.....	6,693,000.00
Appropriation less than original estimate.....	7,000.00	225,000.00	432,000.00

Summarizing the foregoing table, the following is found:

Total funds for procurement of reserve clothing estimated for by Quartermaster General's Office, 1909 to 1916, inclusive, eight fiscal years.....	\$12,656,159.50
Total approved by the War Department.....	6,330,295.66
Reduction made by the War Department.....	6,325,863.84
Appropriated by Congress.....	4,121,634.61
Reduction made by Congress of estimates as submitted by War Department.....	2,208,761.05
Total reduction.....	8,534,624.89

In addition to the foregoing, reductions to the extent of \$1,066,-023.99 were made by the War Department in the estimates for current requirements, clothing, and equipage. Congress further reduced this item to the extent of \$117,000, making a total reduction of \$1,183,023.99 under current requirements, and \$8,534,624.89 for reserve, a grand total of \$9,717,648.88, representing equipment of clothing and equipage for field service of approximately 138,000 men, or one outfit for approximately 200,000 men. The following table shows the reserve stock of clothing, etc., and value thereof on hand in field supply depot No. 1 (Philadelphia) May 31, 1916.

Articles.	Quantity.	Value.
Axes and helves.....	2,922	\$1,139.58
Bags, surplus kit.....	1,477	5,602.96
Bars, mosquito, single.....	13,680	47,890.00
Bed sacks.....	22,670	22,670.00
Blankets, wool, olive-drab.....	53,768	166,606.44
Brassards, red.....	2,785	473.45
Brooms, corn.....	32,766	8,519.16
Brushes, scrubbing.....	35,327	3,885.97
Bugles, with slings.....	506	1,297.85
Clothing:		
Belts, waist.....	88,602	8,860.20
Breeches, cotton, foot.....	167,828	179,575.96
Breeches, cotton, mounted.....	61,612	65,924.84
Breeches, woollen, foot.....	229,371	629,847.01

Articles.	Quantity.	Value.
Clothing—Continued.		
Breeches, woolen, mounted.....	43,406	\$100,267.86
Chevrons, pair.....	20,468	7,368.48
Coats, cotton, service.....	213,606	279,902.46
Coats, woolen, service.....	145,008	572,781.00
Cords, hat.....	81,398	4,089.90
Drawers, pair.....	419,807	117,573.96
Gloves—		
Yellow horsehide, pairs.....	13,745	17,181.25
Riding, pairs.....	26,514	46,073.80
Wool, olive-drab, pairs.....	62,490	17,321.70
Hats, service.....	80,748	83,977.92
Laces, shoe, extra, pairs.....	149,584	1,496.84
Leggings—		
Canvas, pairs.....	229,378	106,513.88
Leather, pairs.....	1,626	3,577.20
Shirts, flannel, olive-drab.....	315,696	751,047.08
Shoes, marching, pairs.....	223,726	628,670.06
Stockings, pairs.....	234,122	30,435.86
Tags, identification.....	222,437	2,224.37
Undershirts.....	229,268	112,341.32
Colors:		
Camp, with staff.....	264	726.00
With case, staff, cord, and tassels—		
National, silk.....	11	275.00
National, service.....	11	104.50
Regimental, Infantry.....	11	1,514.00
Cots.....	10,512	31,636.00
Desks, field, small.....	628	3,480.28
Flags, chaplain.....	14	12.00
Flags, National, storm, with halcyards.....	543	3,529.50
Guidons, with case and staff:		
Field Artillery, silk.....	15	210.00
Field Artillery, service.....	37	107.30
Signal Corps, silk.....	7	85.75
Cavalry, silk.....	2	18.50
Cavalry, service.....	183	457.50
Guidons, ambulance, with staff.....	135	303.75
Head nets, mosquito.....	87,337	23,580.99
Overcoats.....	25,845	283,638.80
Pickaxes and helves.....	3,286	821.50
Pins, tent, shelter.....	702,344	19,314.46
Poles, tent, shelter.....	119,437	15,526.81
Ponchos.....	58,950	206,325.00
Pouches, music, olive drab.....	825	2,079.00
Shovels, short-handle.....	1,614	807.00
Slickers.....	12,648	44,268.00
Slings, color, olive drab.....	15	99.00
Spades.....	6,202	2,966.86
Stands, music.....	342	294.12
Standards, with case and staff:		
Regiment, Field Artillery, silk.....	4	300.00
Regiment, Cavalry, silk.....	6	462.00
National, silk.....	11	170.50
National, service.....	21	136.50
Sticks, size, shoe.....	588	583.00
Stretchers, shoe.....	1,099	549.60
Tape, foot measure.....	942	47.10
Tents:		
Shelter, halves.....	198,417	283,736.51
Pyramidal, complete.....	5,973	240,174.33
Storage, complete.....	73	7,950.43
Wall, large, complete.....	1,865	79,784.70
Wall, small, complete.....	2,157	54,917.22
Hospital, tropical, complete.....	816	38,996.64
Hospital, ward, complete.....	48	6,427.20
Tent flies, hospital, extra.....	1,514	22,906.82
Toilet articles:		
Combs.....	12,845	1,011.60
Housewives.....	2,890	1,011.60
Whistles and chains.....	17,264	3,452.80
MATERIALS.		
Cloth, cotton, olive drab.....	360,821	57,781.36
Meltons:		
Olive drab, 14 ounces.....	59,078	65,576.58
Olive drab, 17 ounces.....	111,284	145,782.04
Olive drab, 30 ounces.....	133,027	270,044.81
Cloth, waterproof.....	17,183	12,887.26
Duck:		
Khaki, 8 ounces.....	41,014	6,562.24
Khaki, 12.4 ounces.....	433,282	99,654.86
Shelter tent.....	254,808	55,991.76
Flannel, shirting, olive drab.....	308,718	298,282.10
Serge, huster wool.....	26,320	9,212.00
Total.....		6,271,272.38

CONTRACTS.

There have been received, indexed, examined, correction secured when necessary, and filed and properly disposed of during the fiscal year ended June 30, 1917, contracts, leases, etc., as indicated below:

Contracts with bonds.....	2,292
Contracts without bonds.....	2,503
Leases.....	2,081
Supplemental contracts.....	224
Annual bonds.....	38
Notices of increase, decrease, or termination of contracts.....	932
Letters, etc., received during the fiscal year.....	22,820
Letters, etc., sent during the fiscal year.....	4,322

PERSONNEL.

Commissioned—Regular Army.—On June 30, 1916, the commissioned strength of the Quartermaster Corps was as follows:

Major general.....	1
Brigadier generals.....	2
Colonels.....	14
Lieutenant colonels.....	18
Majors.....	48
Captains.....	102
Total.....	185

Under act of Congress approved June 3, 1916, the authorized commissioned strength of the Quartermaster Corps is as follows:

Major general.....	1
Brigadier generals.....	2
Colonels.....	21
Lieutenant colonels.....	24
Majors.....	68
Captains.....	180
Pay clerks then in active service who were appointed and commissioned second lieutenants in the Quartermaster Corps.....	73
Total.....	369

Under act of Congress approved August 29, 1916, 1 military storekeeper with rank of captain was appointed.

Under act of Congress approved August 29, 1916, 1 first lieutenant, Quartermaster Corps, was appointed, who later was retired.

During the fiscal year ended June 30, 1917, the full strength of the Quartermaster Corps was increased by authorizing the 5 increments under the act of Congress approved June 3, 1916.

During the fiscal year the major general was retired and the vacancy filled by the appointment of a brigadier general to that grade.

Of the 2 brigadier generals, 1 was appointed a major general and 1 was retired as a major general, their vacancies being filled by the appointment of 2 colonels.

There were 13 promotions to the grade of colonel from the grade of lieutenant colonel, 11 from the permanent officers of the Quartermaster Corps and 2 from officers detailed from the line of the Army in the Quartermaster Corps. Two colonels were retired during the fiscal year.

There were 29 promotions to the grade of lieutenant colonel from the grade of major, 16 of which were made from the permanent

officers of the corps and 13 from officers detailed in the corps from the line of the Army. One lieutenant colonel of the permanent corps was retired.

There were 30 promotions to the grade of major from officers detailed in the Quartermaster Corps from the line of the Army as captains. Six majors were detailed in the corps, 2 were retired, 7 were relieved from detail in the corps, and 1 was recommissioned.

Eighty captains were detailed in the Quartermaster Corps from the line of the Army during the fiscal year, 41 were relieved from detail in the corps, 1 died, and 1 resigned.

Of the 73 second lieutenants authorized by the act of Congress approved June 3, 1916, 1 was commissioned a first lieutenant, 2 were retired, 2 died, and 2 resigned, leaving 66 second lieutenants in the corps June 30, 1917.

On June 30, 1917, there were on duty in the Quartermaster Corps of the Regular Army in the United States, Canal Zone, Philippine Islands, Hawaiian Islands, and Europe, the following officers:

Major general.....	1
Brigadier generals.....	2
Colonels.....	23
Lieutenant colonels.....	45
Majors.....	55
Captains.....	91
Captain (military storekeeper).....	1
Second lieutenants.....	66
Retired officers.....	85
Total.....	369

There remained to be filled on June 30, 1917, 79 vacancies for commissioned officers in the Quartermaster Corps, to be detailed from the line of the Army.

In accordance with section 37 of the national defense act, June 3, 1916, boards of officers were convened in the various large cities within the continental limits of the United States and at Ancon, Canal Zone, Honolulu, Hawaii, and Manila, P. I., for the purpose of examining applicants for commissions in the quartermaster section of the Officers' Reserve Corps.

Up to and including June 30, 1917, approximately 2,576 applicants were authorized to appear before the various examining boards to determine their fitness for commission.

As a result of these examinations, 96 commissions in the grade of major and 796 commissions in the grade of captain were issued; total, 892 officers commissioned on June 30, 1917. Approximately 300 applicants were found physically disqualified and 245 professionally disqualified.

By authority contained in section 38 of the national defense act, 57 majors and 693 captains were placed on active duty at the various depots, posts, and stations throughout the United States and island possessions.

Commissions vacated during the fiscal year 1917 are as follows: By resignation, 6 majors and 15 captains; by death, 1 captain; total, 22.

Quartermaster sergeants, senior grade, Quartermaster Corps.—On June 30, 1916, there were 7 quartermaster sergeants, senior grade. During the year 14 were appointed and 3 discharged, leaving 18 in the service on June 30, 1917.

Quartermaster sergeants, Quartermaster Corps.—On June 30, 1916, there were in the service 397 quartermaster sergeants, Quartermaster Corps. During the year 172 were appointed, 64 discharged, 20 retired, 7 promoted, 1 transferred, and 2 died, leaving 475 in the service on June 30, 1917.

Enlisted men, Quartermaster Corps.—The regular annual educational examinations of enlisted men for appointment to the higher grades of the Quartermaster Corps (quartermaster sergeant, senior grade, Quartermaster Corps, and quartermaster sergeant, Quartermaster Corps, excepted) were held on March 5, 1917, pursuant to the provisions of Circular No. 13, Office of Quartermaster General, 1916. The examinations for quartermaster sergeant, senior grade, Quartermaster Corps, and quartermaster sergeant, Quartermaster Corps, were held on December 5, 1916, pursuant to the provisions of the foregoing circular.

The following statement shows the number of persons examined and the number of appointments made of those who attained an eligible rating of both the educational and noneducational grades during the period July 1, 1916, to June 30, 1917:

Grade and examination.	Number examined.	Number appointed.
EDUCATIONAL.		
Quartermaster sergeant, senior grade, Quartermaster Corps:		
Instructor, Quartermaster Corps school.....	50	4
Inspector of Subsistence Stores.....	112	7
Engineer of motor transport.....	26	6
Master electrician.....	32	0
Total.....	220	17
Quartermaster sergeant, Quartermaster Corps.....	124	98
Sergeant, first class:		
Baker.....	19	2
Clerk.....	108	76
Electrician.....	25	.....
Engineer, foreman.....	32	2
Truckmaster.....	37	1
Total.....	221	81
Sergeant:		
Chauffeur.....	206	8
Clerk.....	182	113
Electrician.....	43	6
Engineer.....	43	3
Foragemaster.....	8	2
Storekeeper.....	29	4
Total.....	511	136
Total educational.....	1,076	332
NONEDUCATIONAL.		
Sergeant:		
Baker.....	28	19
Blacksmith and horseshoer.....	32	10
Carpenter.....	46	22
Farrier.....	9	3
Fuel overseer.....	10	20
Mason.....	1	0
Overseer.....	57	29
Packmaster.....	6	4
Painter.....	11	8
Plumber.....	30	20
Saddler.....	10	3
Tinner.....	3	2
Wagonmaster.....	10	10
Wheelwright.....	8	0
Total noneducational.....	256	150
Grand total.....	1,332	482

On June 30, 1917, a total of 2,001 civilian employees of the United States and 264 in the Philippines, together with 2,045 enlisted men of the line on extra duty in the Quartermaster Corps, had been replaced by 7,994 enlisted men of the Quartermaster Corps.

The following statement shows the number of men by grades, apportioned to the different departments and other stations and Hawaii and the Philippines, the number of men in service, and the number of vacancies as of June 30, 1917:

Enlisted men, Quartermaster Corps, by grades, apportioned for the performance of the various duties of the Quartermaster Corps in the United States, Hawaii, and the Philippines, the number of such men actually in the service, and the number of vacancies as of June 30, 1917.

	Ser- geants, first class.	Ser- geants.	Cooks.	Corpo- rals.	Privates, first class.	Privates.	Total.	Vacancies.
United States:								
Apportioned.....	205	1,893	145	697	2,446	1,546	6,932	.....
In the service.....	201	1,861	144	692	2,335	1,640	6,873	.....
Vacancies.....	4	32	1	5	111			153
Hawaii:								
Apportioned.....	18	129	8	53	204	57	464	.....
In the service.....	13	126	8	51	196	54	448	.....
Vacancies.....		3		2	8	3		16
Philippines:								
Apportioned.....	20	151	8	52	323	44	598	.....
In the service.....	17	139	7	47	286	36	532	.....
Vacancies.....	3	12	1	5	37	8		66
Totals:								
Apportioned.....	238	2,173	161	802	2,973	1,647	7,994	.....
In the service.....	231	2,126	159	790	2,817	1,730	7,853	.....
Vacancies.....	7	47	2	12	156			235

Quartermaster Enlisted Reserve Corps.—Under date of May 23, 1917, the Secretary of War authorized the Quartermaster General of the Army to enlist 15,993 men for the quartermaster section of the Enlisted Reserve Corps. From this number the following Quartermaster Corps units were to be formed:

Wagon companies.....	235
Auto truck companies.....	106
Bakery companies.....	20
Pack-train companies.....	24

leaving a balance of 2,267 men to be enlisted under the head of "Miscellaneous personnel" (clerks, mechanics, etc.).

Allotments were made to the several Territorial departments in the United States of units and miscellaneous personnel, and recruiting carried on under the direction of the department commander.

Various civilian committees volunteered to aid in the recruiting for the Quartermaster Enlisted Reserve Corps, and their services were invaluable in securing the best available material.

Several colleges and universities tendered their services through the Council of National Defense to conduct quartermaster training courses fitting students for the duties of clerks and storekeepers. These courses covered a period of six weeks and at the expiration thereof graduates are to be enlisted in the Quartermaster Enlisted Reserve Corps in appropriate grades.

On June 30, 1917, a total of 6,056 men had been enlisted in the several grades and designations. Of this number, 1,909 were called to active duty and assigned to posts and stations in the United States.

Civilian employees.—There are distributed throughout the United States and its insular possessions approximately 20,500 civilian employees (including both permanent and temporary). About 40 per cent of this number have been employed on account of enlargement of the Army, and on account of the United States being at war with Germany.

SCHOOL FOR RESERVE OFFICERS AT WASHINGTON, D. C.

The School for Reserve Officers, conducted at the Army Medical School, 464 Louisiana Avenue NW., began on April 3, 1917, and was continued until about July 31, 1917.

The school consists of a series of lectures on subjects pertaining to the Quartermaster Corps for the purpose of increasing the efficiency of the Quartermaster Reserve Corps and is supplemented by talks illustrating in a practical way the duties of the Quartermaster Corps. Lectures are given on Tuesday evening of each week by officers specially selected for the duty. These lectures are printed in pamphlet form and distributed to each officer of the Quartermaster Corps and Quartermaster Officers' Reserve Corps.

CORRESPONDENCE SCHOOL, QUARTERMASTER OFFICERS' RESERVE CORPS.

The Correspondence School for Reserve Officers of the Quartermaster Corps was established by authority of the Secretary of War and began operations at Philadelphia on April 1, 1917. This division of the Quartermaster Corps School was organized for the purpose of instructing persons holding commissions in the quartermaster section of the Officers' Reserve Corps, both on active and inactive list, and is a branch of the Quartermaster Corps School at Philadelphia.

Instruction is imparted by mail. The students are given certain assignments for study and professional reading. Examinations or problems on the subject studied are then sent to the student officers, who answer the questions and return all papers to the school. The instructors at the school correct the student's paper, making such pertinent remarks thereon as may be called for. The papers are then graded and returned to student together with an approved solution made up by the instructors. As soon as student has turned in a set of papers he is given the next series. A record is kept of the percentages attained by each student. All quartermaster reserve officers are encouraged to avail themselves of this course and about 75 per cent are now enrolled.

OFFICE WORK AND CIVILIAN PERSONNEL.

The work of this office has increased tenfold in the past five months, and is rapidly increasing. This is due to the permanent increase of the Army, large amount of new legislation affecting the Quartermaster Corps, and war conditions. It has imposed a much greater responsibility and required the highest administrative ability to take care of the new and important work in the various divisions and branches of the office. It has not been possible to spare officers to perform all this original and supervisory duty, and in consequence

it has been necessary to largely depend upon the ablest and most experienced clerks.

The office force has worked without regard to hours—Sundays, holidays, and nights—it being necessary to establish night shifts as well as day shifts, and they have done this cheerfully and faithfully. During the past four months 31,199 hours overtime, have been made. This amount does not represent anything like the full extent of overtime, especially in cases where employees work an hour, more or less, voluntarily doing this extra duty because of pride in keeping their work up to date. Some clerks have made as high as 148 hours overtime in a single month. Then there is no provision for compensation for this extra time as there is in other departments of the Government, and in view of this the amount of overtime made and the spirit in which it was rendered makes it all the more creditable to those doing this duty. Even with all the extra force and the overtime it has not been possible to keep up the work.

Office room in the State, War, and Navy Building has been wholly inadequate because of the large increase in the number of officers and employees. Some portions of the force are now located in a building at Fifteenth and M Streets NW., some in a building near Fourteenth and I Streets, others in the Adams Building, some in the Union Station, and others in the Treasury Department Building.

The clerical and messenger force on this date consisted of 289 clerks, 6 messengers, 14 assistant messengers, and 12 laborers on the regular roll; also 595 clerks, 5 messengers, and 77 assistant messengers carried on the additional roll, which is paid from lump-sum appropriations. There were 30 clerks added to the permanent force last September to meet increasing demands, and the work and numbers are increasing daily.

Many employees failed to get but a portion of their leave last year, and now owing to the existing emergency only seven days leave have been allowed to those who have been here six months and but one day for those who have been here less than that time.

The low entrance salary of \$900 on the regular roll and that of \$1,000 on the additional roll with small prospects of promotion is discouraging to competent and ambitious clerks. This is especially so with those on the additional roll, who do not get the benefit of the 10 per cent increase, as Congress made no provision for it. During the present crisis favorable consideration is not given to applications for transfer of clerks to other bureaus or departments of the Government, which would enable them, in many instances, to obtain a higher rate of pay, as they also can in commercial life, as some departments of the Government are paying an entrance salary of \$1,200 per annum, and have in a number of cases specially requested the transfer of clerks in this office and offered them \$1,200. In other instances clerks have remained at the reduced rate of pay when they could obtain more in commercial life, but from patriotic motives elected to remain in the Government service. It has been the policy of the office in cases of resignations to recommend that the employee be not restored to the eligible list for certification or appointment elsewhere in the Government service during the present crisis. This is in line with the Executive order of April 2, 1917, as republished in circular M of the War Department, dated August 27, 1917.

A new system of efficiency rating has been established by the constitution of a sub-board consisting of the principal clerks of the various divisions of the office together with the chief clerk. This board submits its findings to the regular efficiency board, consisting of the senior officers in charge of the various divisions of the office together with the chief clerk, who also go thoroughly into the whole subject. By this plan the civilian personnel is fully and fairly represented by those who know all the conditions which surround them and have at all times their interest at heart. Thus far the plan has produced gratifying results, and it is believed to be a very just and promising method of dealing with a difficult and trying problem.

It is thought that if there were an equitable retirement provision or law for superannuated employees it would result in increased efficiency and ultimate economy for the Government.

QUARTERMASTER MANUAL.

A new manual for the Quartermaster Corps was completed in time for issue to the service in May, 1917.

It consists of two volumes. The first volume is the manual proper, and deals in logical order with the multitudinous duties which a quartermaster may be required to perform; and the second is an appendix containing matter essentially necessary for reference on occasion.

A thorough study of the subject matter in the first volume, with a reference now and then to the second volume, will give an officer a theoretical knowledge for safe guidance in his practical work of supply both in garrison and the field.

A revised edition of the Quartermaster Manual is now being printed.

The Quartermaster Manual has been brought up to date by the insertion of the Table of Fundamental Allowances, Quartermaster Supplies, 1917-18, in lieu of the old table in Appendix No. 26, and by including changes Nos. 1, 2, and 3 heretofore submitted.

In most instances where paragraphs of the Army Regulations were quoted in full in the first print of the manual, a short synopsis has been substituted, thus avoiding the necessity of making a change in the manual to correspond with each change in the Army Regulations.

COMPILATION OF LAWS.

The compilation of laws relating to the Quartermaster Corps, issued in 1914, has been revised and brought up to date, and is now ready for printing.

CLAIMS.

Miscellaneous accounts.—There were 101 accounts received during the fiscal year, amounting in the aggregate to \$3,327.95. Of these, 7 accounts, amounting to \$84.20, were allowed, and 94 accounts, amounting to \$3,243.75, were transmitted to the Treasury Department for settlement in the sum of \$3,019.66, deductions aggregating \$124.09 having been made in 13 accounts.

Travel expense accounts.—On May 25, 1917, all matters in connection with the claims of civilian employees for reimbursement of travel-

ing expenses were transferred from the personnel branch to the claims branch. From that date to the close of the fiscal year 14 accounts for reimbursement for such expenses, amounting to \$301.97, were received by the branch and authorized to be paid.

Damage claims.—At the beginning of the fiscal year there were on file in the office awaiting an appropriation by Congress for payment 52 claims for damages to private property of citizens of the United States and its island possessions, amounting in the aggregate to \$4,280.24. Seventy-nine claims were received during the fiscal year amounting to \$6,950.31.

Total on hand and received during the fiscal year, 131 claims, amounting to \$11,230.55.

In the act making appropriations for support of the Army for the fiscal year ending June 30, 1917, approved August 29, 1916, an appropriation of \$5,000 was made for payment of damage claims, and 77 claims amounting in the aggregate to \$4,998.72 were transmitted to the Auditor for the War Department for payment therefrom, leaving a balance of \$1.28. In the act making appropriations for support of the Army for the fiscal year ending June 30, 1918, approved May 12, 1917, another appropriation of \$5,000 was made for the payment of damage claims, and 40 claims amounting in the aggregate to \$4,975.29 were transmitted to the Auditor for the War Department for payment therefrom, leaving a balance of that appropriation of \$24.71.

Total amount appropriated during fiscal year.....	\$10,000.00
Total amount authorized paid during fiscal year, 117 claims, amounting to..	9,974.01

Balance unauthorized expended.....	25.99
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At the close of the fiscal year there were on hand awaiting an appropriation for payment, 14 damage claims, amounting to \$1,256.54, the balance of the appropriation on hand being too small to pay any of them. This balance can be utilized for the payment of a claim not exceeding the amount thereof.

Settlement of claims for losses of private property under act of Congress approved March 3, 1885.—There were received in this office during the last fiscal year 306 claims for losses of property by enlisted men of the Army. After careful examination they were submitted to the Secretary of War for certification and transmission to the Auditor for the War Department as required by the act of Congress of March 3, 1885. The value of the property which in the opinion of this office was considered equitable aggregated \$7,163.57.

On page 26 of the Report of the Quartermaster General for the fiscal year 1916 statement is made as to pending claims of officers, enlisted men, and others for reimbursement for clothing, etc., lost by them in the hurricane on the coast of Texas in August, 1915. In view of the recommendations to Congress for special legislation in the matter nearly all of these claims were held here until June 15, 1917, when they were transmitted by the Assistant Secretary of War to the Auditor for the War Department. This action was taken in order that the claimants might not, through default of the War Department, be barred from any right of recovery available to them under the act of March 3, 1885, in so far as applies to the requirement for filing claims thereunder, with the proper authorities, within two years from the date of the loss of the property.

Other claims for reimbursement under the act of March 3, 1885, and miscellaneous damage claims were transmitted to the Auditor for the War Department for settlement as follows: Thirteen claims, amounting to \$7,027.51, and allowances amounting to \$2,579.15 were recommended; one claim in an indefinite amount, and five claims amounting to \$5,861.75, as to which it was recommended that no allowances be made.

Confederate horse claims.—At the beginning of the fiscal year there were on file in this office awaiting response by the claimants in respect to the furnishing of evidence, 418 claims for payment of horses and baggage taken from paroled Confederate soldiers in violation of the terms of the surrender of the Confederate armies at Appomattox in April, 1865, presented to this office under the act of Congress approved February 27, 1902.

The time limit fixed by law for the presentation of these claims expired on June 25, 1912, and no claims were received during the fiscal year.

One claim, amounting to \$135, was allowed during the fiscal year, leaving on hand at the close of the fiscal year 417 claims.

NEWSPAPERS AND PERIODICALS.

For the supply of newspapers and periodicals for the use of the enlisted men of the Army serving in the United States, Hawaii, Alaska, and the Canal Zone, an expenditure of \$6,110.50 was authorized by the branch during the fiscal year, and the amount expended for supply of reading matter for the troops serving in the Philippine Islands was as reported, \$756.32, making a total authorized expenditure for this purpose of \$6,866.82.

NATIONAL CEMETERIES.

There are 83 national cemeteries, classified as follows: First class, 31; second class, 19; third class, 4; fourth class, 29.

The interments therein during the fiscal year were 1,842, the total at the close of the year being 220,855 known, 153,147 unknown; grand total, 374,002.

The appropriation for maintaining and improving national cemeteries, including fuel for superintendents, pay of laborers, and other employees, purchase of tools and materials, was \$120,000. From this sum the buildings, drives, walks, walls, fences, monuments, etc., have been kept in proper condition, so far as practicable, the most important improvements being made at the following cemeteries:

Annapolis, Md., new bathroom in lodge.....	\$300.00
Arlington, Va.:	
Repairs to road on west side of Sylvan Hall.....	1,000.00
Repairs to McPherson Avenue.....	3,000.00
Repairs to other roads.....	742.46
New drainage pipe.....	266.00
Laying out new burial lots.....	1,000.00
Chalmette, La.:	
Repairs to lodge.....	319.00
Repairs to inclosing wall.....	675.00
Custer Battlefield, Mont., new sidewalks.....	275.00
Fayetteville, Ark.:	
New water supply system.....	310.00
Repairs to lodge.....	500.00

Jefferson Barracks, Mo., repairs to office, stable, rostrum, and flagstaff.....	\$288.00
Jefferson City, Mo., repairs to inclosing wall.....	432.00
Little Rock, Ark., new water and sewer system.....	1,798.76
Marietta, Ga., new outbuilding.....	533.18
San Antonio, Tex., new steel flagstaff.....	375.00
San Francisco, Cal., repairing road to entrance gate.....	446.00

Under authority of an item in the sundry civil appropriation act for fiscal year 1917 appropriating \$1,500 for the purpose an addition to the lodge at the national cemetery at Salisbury, N. C., for use as a kitchen and bathroom, was constructed.

The unexpended balance of the "National Cemeteries" appropriation at the end of the fiscal year was \$694.06.

Superintendents.—There are 76 superintendents of national cemeteries authorized by law. Seven cemeteries were under charge of caretakers during the fiscal year. There have been five casualties, all by death, and five new appointments have been made.

The appropriation for the pay of superintendents of national cemeteries, fiscal year 1917, was \$63,120; and the entire sum was expended.

Government approach roadways.—The appropriation for repairing the 17 roads to national cemeteries maintained by the Government was \$12,000, of which \$11,965.14 was expended, leaving an unexpended balance of \$34.86.

The most important repairs have been made to the roads to the following national cemeteries:

Antietam, Md.....	\$125.00
Barrancas, Fla.....	4,717.86
Florence, S. C.....	5,460.00
Natchez, Miss.....	375.00
Port Hudson, La.....	300.00
Staunton, Va.....	455.00

Post cemeteries.—Approximately \$2,900 was expended in the repair and maintenance of post cemeteries during the fiscal year, the largest item being \$900 for construction of a wall around the post cemetery at Fort Bliss, Tex.

Headstones.—A contract was entered into August 10, 1916, for furnishing 14,000 headstones for unmarked graves of Union soldiers, sailors, and marines, and Confederates buried in national cemeteries and civilian employees buried in post cemeteries, under the acts of March 3, 1873, February 3, 1879, March 9, 1906, April 28, 1904, and June 30, 1916, at \$2.40 each. The number to be furnished under this contract was subsequently reduced to 12,000.

Twelve thousand one hundred and sixty-seven headstones were furnished and shipped for this purpose during the fiscal year.

Disposition of remains.—Appropriation for fiscal year 1917, \$57,500; appropriation made by deficiency act approved September 8, 1916, \$50,000, total \$107,500. The entire amount was expended.

The following disposition was made of the remains of officers and enlisted men of the Army (active) and the remains of civilian employees in the employ of the War Department who died abroad, in Alaska, in the Canal Zone, in Mexico, or on Army transports, or who died while on duty in the field, or at military posts within the limits of the United States.

Received at San Francisco, Cal. (including the remains of 12 civilians and 15 remains handled for the Navy Department):

Shipped home.....	63	
Delivered to relatives.....	14	
Interred in San Francisco (Cal.) National Cemetery.....	38	
Awaiting disposition July 1, 1916.....	5	
		120

Buried in Alaska.....	1	
Received at Seattle, Wash., from Alaska and shipped home.....	1	
Received at New York from Panama and shipped home.....	9	
Interred in Canal Zone, Panama.....	3	
Interred in Porto Rico.....	3	
		17

In the United States and Mexico:

Drowned, not recovered.....	7	
Shipped home.....	1,317	
Interred in post or national cemeteries.....	223	
		1,547

Total..... 1,684

Under authority of an item contained in the sundry civil act for fiscal year 1917, appropriating \$200 for the purpose, the remains of the late Orman K. Osbon, formerly private, First South Dakota Infantry, who while employed as a teacher was killed by ladrones and buried in the Catholic cemetery at Bolinao, P. I., were disinterred and removed to the national cemetery at San Francisco, Cal., and there reinterred on March 30, 1917.

During the year the following remains of soldiers were removed from fields and abandoned cemeteries and reinterred in national or post cemeteries: Six known remains from Fort Duncan to Fort Clark, Tex.; 20 known remains from Fort Yellowstone, Wyo., to Custer Battlefield, Mont., National Cemetery; 1 known remains from farm at Meyers, Mont., to Custer Battlefield National Cemetery.

Interment of indigent soldiers.—Thirty-three claims, amounting in the aggregate to \$1,482.88, have been settled under the provisions of the act for expenses of burying in the Arlington National Cemetery, or in the cemeteries of the District of Columbia, indigent ex-Union soldiers, ex-sailors, or ex-marines of the United States service, etc., who have been honorably discharged or retired and who died in the District of Columbia. The amount allowed in each case, exclusive of cost of grave, is \$45. Six claims of burial expenses under this law were rejected and three claims are awaiting settlement. One-half of the expenses incurred for this purpose is payable by the District of Columbia.

Revocable licenses.—Revocable licenses authorizing the use of portions of national cemetery reservations or Government approach roadways to national cemeteries have been issued by the Secretary of War as follows:

City Point, Va., to sanitary department, city of Hopewell, Va., to lay a storm drain 10 inches in diameter along the west side of the road, June 21, 1917.

Culpeper, Va., to Merchants Grocery Co., to construct a crossing over the road; June 20, 1917.

Fayetteville, Ark., to city water plant, to lay a 2-inch water main along the road from Wall Street south to city limits; April 23, 1917.

Newbern, N. C., to Frank Allen, to cross the road with a 6-inch water pipe line, to supply water to Sunnyside subdivision, and to connect said subdivision with the road by a street; July 19, 1916.

Salisbury, N. C., to North Carolina Public Service Co., to place 6 electric-light poles along the road and string wires thereon; April 30, 1917.

Staunton, Va., to Higgs & Young, to construct a concrete culvert over the gutter to provide access to their factory; July 25, 1916.

On April 19, 1917, the War Department approved the request of the Yazoo & Mississippi Valley Railroad Co. for permission to extend on the reservation of the Vicksburg, Miss., National Cemetery the slopes of the embankment of their railroad in connection with the substitution of a concrete arch for the former unsightly frame trestle upon its right of way across the reservation.

Attention was invited in my annual report of the last fiscal year to the inadequacy of the appropriation made annually for the care and maintenance of the 83 national cemeteries under the control of this office. Attention is invited to that statement and it is earnestly recommended that the appropriation be sufficiently increased to meet the actual requirements of the service. Owing to the increase in the price of labor, material, forage, fuel, and straw, it has been found impracticable to make needed improvements and repairs at many of the national cemeteries, and it is again recommended that in submitting estimates for the fiscal year 1919 the amount asked for care and maintenance of national cemeteries be increased to \$150,000.

The burial space in the following national cemeteries is fast becoming exhausted and unless some adequate provision is soon made to extend these cemeteries interments therein must necessarily cease: San Francisco, Cal., National Cemetery; Hampton, Va., National Cemetery; Santa Fe, N. Mex., National Cemetery.

In the case of the San Francisco National Cemetery a special estimate has already been submitted for its extension amounting to \$12,160, which has not received favorable action by Congress.

Additional land is required for the Hampton National Cemetery to provide for the interment of the inmates of the Hampton Soldiers' Home, of which 150 who died during the last fiscal year were buried in the Hampton National Cemetery.

There is only sufficient space left in the Santa Fe National Cemetery for 12 additional burials and it will require approximately \$7,000 to extend the wall and place the ground in suitable condition for future burials.

CONSTRUCTION AND REPAIR.

The following is a list of the appropriations pertaining to the construction and repair division showing the amount appropriated for the fiscal year ending June 30, 1917, together with the amounts expended and the unapportioned balance remaining under each appropriation:

	Appropriated.	Expended.	Unapportioned balance.
Barracks and quarters.....	\$4,441,000.00	\$4,440,783.48	\$216.52
Construction and repair of hospitals.....	409,963.00	409,526.14	436.86
Quarters for hospital stewards.....	14,043.00	12,618.73	1,424.27
Military post exchanges.....	48,592.00	47,859.07	732.93
Shooting galleries and ranges.....	49,000.00	49,000.00	.....
Roads, walks, wharves, and drainage.....	880,534.00	859,216.00	1,318.00
Supplies, services, and transportation, Quartermaster Corps..	1,284,000.00	1,253,666.00	334.00
Military posts.....	152,843.11	131,963.50	20,879.61
Barracks and quarters seasonet defenses.....	420,000.00	392,253.97	27,746.03
Supplies, services, and transportation, Quartermaster Corps, water and sewers.....	4,000,000.00	3,998,162.18	1,837.82

Accompanying is a statement of the buildings constructed or contracted for, showing the cost of the various items and the appropriations to which the cost has been charged from funds of fiscal year 1917 with the exception of work in the Philippine Islands; also the construction of shooting galleries and target ranges, erection equipment and maintenance of suitable buildings for conduct of post exchanges, gymnasiums, etc., construction of roads, walks, wharves, drainage, dredging, improvement of grounds, water-supply systems, including distributing systems, sewerage systems, construction of reservation fences, installation of bake ovens and apparatus, heating systems, lighting systems, ice and refrigerating plants, laundry plants, etc. (Exhibit 2.)

Mexican border.—On the Mexican border the following amounts have been expended under the various appropriations during the fiscal year 1917 for construction and repair for the Regular Army:

Barracks and quarters.....	\$1, 236, 010. 93
Construction and repair of hospitals.....	88, 179. 63
Medical and hospital.....	10, 000. 00
Military post exchanges.....	1, 870. 40
Roads, walks, wharves, and drainage.....	42, 005. 23
Shooting galleries and ranges.....	9, 129. 55
Supplies, services, and transportation.....	115, 062. 08
Supplies, services, and transportation, 1917.....	199, 219. 34

There has also been expended for the militia, Federal service the following:

Barracks and quarters.....	\$1, 064, 876. 05
Construction and repair of hospitals.....	326, 471. 14
Flooring tents.....	2, 000. 00
Roads, walks, wharves, and drainage.....	58, 216. 26
Shooting galleries and ranges.....	16, 407. 66
Supplies, services, and transportation.....	294, 455. 34
Supplies, services, and transportation, 1917.....	381, 532. 42
Civilian military training camps.....	20. 67

Incandescent lamps.—There has been expended for the purchase of incandescent lamps in the United States, \$45,551.50. All lamps now being supplied are of the Tungsten type, and are purchased through the General Supply Committee and distributed through the New York depot. The supply of lamps for the ensuing fiscal year will be of the nitrogen-filled Tungsten type in lieu of the vacuum Tungsten, on account of the greater efficiency which will thus be obtained. The supply of carbon lamps is exhausted, and the Gem lamps nearly so. These latter two types are no longer purchased by this department.

Purchase of light.—For the purchase of light, gas, and electricity there has been authorized for the fiscal year \$480,519.

Inspection of elevators.—For the inspection of elevators during the fiscal year there has been authorized \$91.

Wall lockers.—Wall lockers are purchased for installation in barracks and quarters and the cost of installation is defrayed from the appropriation "Barracks and Quarters." Owing to the high cost of steel no contract was made by the advertising depot (Philadelphia) during the fiscal year 1917, two lots of bids having been rejected as excessive.

Refrigerators.—During the fiscal year 1917, purchases of refrigerators were made, including those contracted for in large lots for distribution to posts on approved requisition according to the table below. This table includes also repairs made.

The cost was defrayed from appropriations made by the Army bill and the deficiency bill for the fiscal year 1917:

Post.	Article.	Cost.
Chicago depot.....	4 refrigerators, battery size.....	\$504.00
Washington Barracks, D. C.....	8 refrigerators, company size.....	758.88
Fort Myer depot, Va.....	1 refrigerator (large).....	987.00
Chicago depot.....	1 refrigerator for quarters No. 1.....	179.80
	Refrigerators contracted for:	
	Wood.—8 battery size, at \$139.15 each.....	1,112.20
	10 company size, at \$99.45 each.....	994.50
	48 officers' size, at \$59.15 each.....	2,839.20
	Metal.—8 battery size, at \$192 each.....	1,536.00
	10 company size, at \$130 each.....	1,300.00
	14 noncommissioned officers' size, at \$50 each.....	700.00
Douglas, Ariz.....	Material to construct ice boxes.....	316.55
Fort Shafter, Hawaii.....	Repairs.....	1.50
Fort Sam Houston, Tex.....	15 ice chests for civilian military training camp.....	240.00
Fort Yuma, Ariz.....	Ice box for Company L, Fourteenth Infantry.....	25.00
Fort Sam Houston, Tex.....	1 refrigerator for quarters 6, Commanding General.....	60.00
State of New Jersey.....	6 ice boxes for bridge guard.....	97.20
Fort Rosecrans, Cal.....	11 ice boxes for troops at Fort Rosecrans, La Playa, North Island, etc.....	191.78
Columbus Barracks, Ohio.....	5 refrigerators for officers' quarters 1, 2, 6, 17, and 72.....	205.40
Fort Sam Houston, Tex.....	Ice chest for officers' mess.....	18.00
Fort Riley, Kans.....	Troop refrigerators for Medical Reserve Corps.....	1,248.00
Leon Springs, Tex.....	16 oak refrigerators, Battery R. O. T. C.....	1,184.00
Jackson Barracks, La.....	Refrigerators.....	899.10
Fort McPherson, Ga.....	18 refrigerators for R. O. T. C.....	1,191.60
Fort Logan, Colo.....	5 refrigerators for 5 temporary kitchens and dining rooms.....	397.00
Fort Washington, Md.....	4 company-size refrigerators for buildings Nos. 11, 29, 30, and 65.....	269.00
Fort Oglethorpe, Ga.....	4 refrigerators for medical reserve training camp.....	330.00
New York depot.....	24 refrigerators for stock.....	1,824.00
Gatun Camp, Canal Zone.....	Construction of ice box for Company K, Thirty-third Infantry.....	36.02
Fort Slocum, N. Y.....	20 company-size refrigerators.....	1,553.68
Jackson Barracks, La.....	1 refrigerator.....	60.00
Fort Des Moines, Iowa.....	4 refrigerators, company size.....	280.00
Columbus Barracks, Ohio.....	10 company-size refrigerators.....	1,180.00
Fort Oglethorpe, Ga.....	3 refrigerators for medical training camp.....	237.50
Fort Morgan, Ala.....	3 battery-size refrigerators.....	417.45
Jackson Barracks, La.....	5 officers-size refrigerators for buildings Nos. 4a, 5a, 6a, 7a, and 57.....	165.00
Fort Sam Houston, Tex.....	1 refrigerator for depot sales and issue room.....	606.00
Fort Leavenworth, United States Disciplinary Barracks, Kans.....	2 officers' size or 2 noncommissioned officers' size refrigerators.....	80.00
Fort Riley, Kans.....	16 refrigerators for Twentieth Cavalry.....	1,000.00
Mineola, N. Y.....	1 large refrigerator for subsistence storehouse and 2 company size.....	410.00
Fort Moultrie, S. C.....	Battery size for building No. 40.....	58.00
Fort Sumter, S. C.....	Battery size for building No. 1.....	58.00
Fort Douglas, Utah.....	12 battalion and 12 company.....	2,345.20
Fort McPherson, Ga.....	22 refrigerators for war prison barracks and stockage.....	2,442.00
Chicago depot.....	Refrigerators purchased for shipment.....	5,229.82
Fort Constitution, N. H.....	1 officers-size refrigerator for building No. 10.....	16.00
Fort Riley, Kans.....	29 refrigerators for Thirteenth, Twentieth, and Twenty-first Regiments Cavalry.....	2,080.00
Fort Fremont, S. C.....	1 company size.....	50.00
Fort Sam Houston, Tex.....	Ice box for officers' mess, Camp Kelly.....	54.00
Fort Ethan Allen, Vt.....	30 company size.....	2,048.00
Fort Hamilton, N. Y.....	6 company size.....	432.00
Jackson Barracks, La.....	Refrigerators.....	115.00
Total.....		40,333.88

Annual repairs to buildings, etc.—Based on the estimates of March 1, 1916, received from military posts and depots, apportionments were made to departments and independent stations at the beginning of the fiscal year 1917 for annual repairs to buildings and systems. From the apportionments to departments, allotments were made to each post by the department commanders within the limits of the funds available. The total amount apportioned for annual repairs from each appropriation of the fiscal year 1917, not including the Philippine Islands, was approximately as follows:

Barracks and quarters: General repairs to buildings.....	\$655, 297
Military post exchanges: Repairs to post exchanges, gymnasiums, bowling alleys, gymnastic apparatus, etc.....	7, 965
Supplies, services, and transportation, Quartermaster Corps:	
Repairs to reservation fences, lighting and heating plants, exterior lighting and heating systems, lighting and heating within buildings, bakery buildings, bake ovens and equip- ment, ice and refrigerating plants, and laundry buildings..	\$182, 516
Repairs to water systems and pump houses, sewer systems, sewage-disposal plants and crematories, plumbing in buildings and fire apparatus.....	158, 133
Repairs to flagstuffs, picket lines, and electric bell systems...	10, 221
Railroad equipment.....	10, 054
	360, 924
Roads, walks, wharves, and drainage: Repairs to roads, walks, curbs, gutters, railroad tracks, wharves, sea walls, retaining walls, drains and drainage; also improvement of grounds.....	196, 261
Shooting galleries and ranges: Repairs to buildings on target ranges, etc....	12, 111
Construction and repair of hospitals: Repairs to hospital buildings.....	151, 396
Quarters for hospital stewards: Repairs to hospital steward's quarters.....	14, 429

Special repairs, alterations, and improvements.—In addition to the annual apportionments for repairs as stated above, expenditures were authorized in the course of the past fiscal year for special repairs, exclusive of Mexican border expenditures (the necessity for which could not be anticipated when the annual estimates were prepared), and for alterations and improvements in buildings, exterior systems, and grounds of the various military posts and stations.

The approximate amount expended for special repairs, alterations, etc., for each appropriation was as follows:

Barracks and quarters (including door and window screens, storm doors, etc.)	\$293, 413
Military post exchanges.....	18, 809
Construction and repair of hospitals.....	69, 215
Quarters for hospital stewards.....	2, 202
Supplies, services, and transportation, Quartermaster Corps.....	240, 905
Roads, walks, wharves, and drainage.....	87, 510

Total..... 712, 054

Purchase of land.—The following is a list of tracts of land purchased during the fiscal year, together with acreage and cost to the Government:

Place.	Acres.	Cost.	Appropriation.
Anniston, Ala. (liability).....	14, 100	\$130, 000. 00	Ranges for purchase, Field Artillery target practice, National Guard, 1917.
Hampton, Va.....	1, 650	290, 000. 00	Land for aviation purposes, Army, 1917.
Do.....	Not given.	9, 986. 70	Land for aviation purposes, Army, 1917 (additional).
Lobos Creek, from Spring Valley Water Company.....	3, 581	98, 937. 50	Water supply, Presidio of San Francisco, Cal.
Purchase of land and water rights..	15, 909. 5	162, 100. 00	Ranges, purchase for Field Artillery target practice.
Fort Sam Houston (part of tracts).....		1 200, 000. 00	Supply depot, Fort Sam Houston.
Fort Sam Houston.....		2 300, 000. 00	Supply depot, Fort Sam Houston (this in addition to the \$200,000 authorized Feb. 4, 1917).
Do.....	280	70, 000. 00	Barracks and quarters, 1917.
Tobyhanna, Pa.....		2 319. 78	Ranges for purchase, Field Artillery target practice, National Guard.
Tobyhanna, Pa. (liability).....	1, 309	3, 927. 00	Ranges for purchase, Field Artillery target practice, National Guard, 1917.

¹ Approximately.

² To cover payments on part of the tracts being acquired at Fort Sam Houston.

³ Two tracts of land adjacent to military reservation at Tobyhanna (John McClellan-Susanna McClellan tracts) acquired by condemnation.

Rentals and lodgings.—The total amount expended from the appropriations for barracks and quarters, fiscal year 1917, for the rental of quarters, offices, storehouses, stables, recruiting stations, lodgings, camp sites, etc., was approximately \$830,425.95. This amount includes rentals in China:

Rental of quarters for officers.....	\$4,539.21
Rental of barracks.....	13,054.32
Rental of quarters for noncommissioned officers and enlisted men.....	3,087.94
Rental of cantonments.....	4,879.17
Rental of camp sites.....	84,003.91
Rental of grounds for other military purposes.....	15,521.76
Rental of buildings or portion of buildings.....	7,579.75
Rental of stables.....	25,980.32
Rental of storehouses.....	226,895.08
Rental of offices.....	92,228.49
Rental of buildings for other military purposes.....	36,718.79
Hire of recruiting stations.....	174,104.56
Total.....	688,593.30

The cost of lodgings for enlisted men on duty at recruiting stations, applicants for enlistment and recruits, amounted to approximately \$141,832.65 for fiscal year 1917.

Target ranges.—The following target ranges were rented during the fiscal year 1917:

Brownsville, Tex.....	\$1.00
Clackamas, Oreg.....	2,449.97
Colchester, Vt.....	276.00
Edsall, Va.....	750.00
Total.....	3,476.97

CHANGES IN MILITARY RESERVATION OTHER THAN THOSE BY PURCHASE.

Bayside (Point Comfort).—Executive Order No. 2627, dated May 27, 1917, restores to the Interior Department this reservation.

Fort Brown, Tex.—Executive Order No. 2622, dated May 17, 1917, restores 20 acres used by the Department of Agriculture, and places same under the control of the War Department.

Long Point (Provincetown, Mass.).—This entire reservation of 150 acres relinquished May 10, 1917, to the Navy Department for use as a naval air station.

Puuloa Reservation.—Transferred to the Navy Department in accordance with provisions of the Army act of August 29, 1916, in exchange for a small portion of the naval reservation on Ford's Island, Hawaii.

Fort Ringgold.—Executive order, dated March 27, 1917, restores this reservation to the control of the War Department.

San Geronimo.—Secretary of War in letter to the Secretary of the Navy, dated May 31, 1917, places the quarters at San Geronimo, P. R., under the Navy Department, upon the understanding that if found necessary these quarters will revert to the War Department.

Fort Wm. McKinley.—Executive order, dated February 20, 1917, conveys all that part of the reservation lying north of the Delain Creek, generally known as the Barrio of Malibay, the same having become useless for military purposes, to the Philippine Islands government for the benefit of the inhabitants thereof.

Fort Yellowstone, Wyo.—Guardianship of the Yellowstone National Park transferred to the Interior Department October 1, 1916, together with all buildings, plants, and systems, except those buildings occupied by the Engineer Department.

TRANSPORTATION.

ARMY VESSEL SERVICE.

For several years past instances have arisen on the different vessels of the service, indicating insubordination on the part of employees through failure to obey orders, frequent absences from their duties without leave, and refusals to work from time to time without increase of pay, resulting in practically tying up the vessels when their services were urgently needed for immediate Government work. Such cases were reported as arising on the mine planters, harbor boats, and vessels of the transport service.

Following numerous recommendations from department commanders and others having the employment of such crews under their direct control, and in order to establish a service over which unquestioned authority could be exercised, with a recognized grade of pay for the same, recommendations were made as early as December, 1915, for the passage of a law authorizing an auxiliary corps of the War Department, with a view to including the civilian personnel on the vessels of the service. This recommendation was finally put in the form of a bill which was introduced in Congress on January 6, 1916.

In this connection, under date of March 20, 1916, the commanding general of the Eastern Department, in forwarding papers on the subject of the crews of mine planters, stated that in view of the fact that these vessels were engaged in accomplishing one of our chief defensive operations (the mining of our harbors), the crews should be a part of the armed force and subject to military laws, and recommended that provisions be made at once to enlist a special class of American citizens for assignment to these positions on the mine planters. This communication was presented to the War Department through the Chief of Coast Artillery under date of May 22, 1916, suggesting legislation along the lines previously recommended for an enlisted service for these vessels.

In November, 1916, owing to the trouble which had existed for some time on board the mine planters on the Atlantic coast, the commanding general, Eastern Department, convened a board of officers, "for the purpose of submitting a report upon conditions which have existed and now exist with reference to the crews of vessels of this class, and to submit recommendations as to the best method of securing for vessels of this type the personnel dependable both in peace and war," and in submitting the report of this board to the War Department recommendation was made by this office under date of January 12, 1917, through the office of the Chief of Coast Artillery, that effort be made to secure legislation placing the officers and crews of these vessels on a practical, working basis, attention being invited to draft of bill to establish an enlisted vessel service in the Quartermaster Corps.

The Chief of Coast Artillery forwarded the papers to The Adjutant General of the Army under date of January 23, 1917, with the draft

of a bill for this service, and The Adjutant General of the Army submitted the case to the Judge Advocate General of the Army under date of April 20, 1917, with instructions to draft legislation covering the case, which was done under date of April 27, 1917, and the papers returned to The Adjutant General.

These papers were finally returned to this office under date of May 19, 1917, with instructions to the Quartermaster General to appear before the Senate and House Military Committees, if invited to do so, and to present the matter with the same arguments for placing crews of quartermaster vessels, mine planters, etc., upon a military status as presented to the Secretary of War.

Under date of December 20, 1916, the Quartermaster General submitted a draft of a proposed bill for establishment of the "United States Army vessel reserve," pointing out that the lack of control over the boat employees has placed the department in a very embarrassing situation, even under normal conditions, and setting forth that, as a military necessity and to assist in performing certain functions, it was absolutely necessary that the duties of the boats of the service should be performed with precision and certainty.

This correspondence was submitted to the Judge Advocate General, who decided that the personnel of these boats might be well included in such crews as are indicated in the draft of bill to establish an Army vessel service in the Quartermaster Corps.

All papers were returned, however, to the Quartermaster General, with information that the Secretary of War had expressed an opinion that there was no possibility of any legislation of this character at that time.

On March 30, 1917, the matter was again brought to the attention of The Adjutant General of the Army, citing the case of the Army transport *Sherman*, which had been put in commission for the purpose of transporting building material from Honolulu in connection with the construction of quarters at Schofield Barracks, and showing that although the vessel was all ready and under orders to sail on March 27, 1917, on account of higher wages being offered by lines operating in connection with the Alaskan fishing industry, the *Sherman* crew would leave the transport, unless an increase of wages was allowed, and that the increase had to be granted before the ship could sail.

Under date of January 30, 1917, the Quartermaster General submitted a memorandum to the Chief of Staff, outlining in detail the necessity for the enactment of a law to establish an Army vessel service for the purpose of bringing into the military service of the United States all persons now comprising the Army transport service and harbor-boat service, and now carried as civilian employees. It was pointed out that the desirability of commissioning, warranting, and enlisting the members of the crews of the vessels comprising the Army transport and the harbor-boat service had long been considered, and during the existence of the present war, such desirability was rendered still more apparent; that difficulties with certain members of crews arising at almost every sailing of an Army transport were constantly in evidence, and the same conditions were multiplying on the harbor boats, mine planters, and cable steamers.

Recommendation for the establishment of a vessel service was renewed in letter of this office of April 3, 1917, on the subject of the crew of the transport *Thomas*, which refused to sail unless wages were increased; in indorsement of this office under date of April 7, 1917, in the case of the crew of the mine planter *Schofield*, reported by the commanding general, Ancon, Canal Zone, stating that he was having difficulty in maintaining a reliable crew; and under date of April 9, 1917, on report of the quartermaster at Newport, R. I., to the effect that the crew of the harbor boats were about to resign, to enter the Naval Reserve because of better pay.

On June 2, 1917, in an indorsement of The Adjutant General of the Army, reference was made to letter from the chairman of the Committee on Military Affairs, in which it is stated that legislation for the creation of a quartermaster boat service in the Quartermaster Corps and a mine-planter service in the Coast Artillery Corps would be taken up with the committee at once. In this connection, it was requested that the opinion of the Judge Advocate General be obtained as to the possibility of drafting civilian crews of these vessels in the military service, pending the passage of the legislation above referred to. By opinion, dated June 4, 1917, The Judge Advocate General decided that the draft authorized by the act of May 18, 1917, does not contemplate the selection of any particular persons, such as those comprising the present crews of mine planters and retaining them in the service, and in his opinion, such crews could not be brought into the military service under the general draft act.

Many conditions existed prior to the declaration of war which forcibly impressed upon this office the wisdom of having all vessels of the service manned by enlisted crews, amenable to military laws and subject to definite rules and regulations with an immediate and well-defined course of action in case of infractions.

As recited in the numerous cases above, the conditions have been aggravated from time to time through the general demand in all lines of shipping for men of this class, with a consequent increase in commercial rates. With the rate of wages fixed by law, and based upon estimates prepared far in advance, the department has found itself seriously embarrassed and handicapped in undertaking to accede to the demands for increases, and in several instances an adjustment to meet the requirements of the crews has only resulted in a similar request from the same crew in a very short period, so that the department has been placed at the mercy of its employees, with no assurances whatever that an accession to one or two requests for increased pay will not be the forerunner of several such demands.

Another vexing and serious problem which has to be met, and which, with a service of several thousand employees, is apt to cause trouble of no small moment, is that of separation from the service, through transfers or resignations. A partial check is to be had on transfers if to other branches of the service, but absolutely no remedy is available in case of resignations.

Under normal conditions, while the defects in the present service have caused embarrassments, they have been of a temporary character only, and having been quickly remedied, no serious results have occurred.

At present, however, when delays are liable to result seriously, and when the successful carrying out of certain lines of operation are essential, depending upon efficiency in every department, it seems absolutely essential—

(1) That the crews shall be of the best type of American citizens available, who are experienced in the work of maintenance and operation of the vessels of the service.

(2) That the tenure of services of such employees shall be of such duration that they can not be terminated at the will of the employees.

(3) That all members of the crew shall be subject to military discipline, thus enabling a prompt and strict compliance with such orders as may be given them.

No plan other than an enlisted service can possibly be suggested under which the crews of the vessels of the Army transport service, the mine planters, and the harbor boat can be controlled, with fixed rates of pay for the different grades, and it is urgently recommended that in view of the unusual conditions now existing, entailing upon the transportation branch of the War Department promptness in the transportation of troops and supplies, requiring a flexible personnel and one ready to respond at all times, that a law be enacted along the lines heretofore proposed for the commissioning, warranting, and enlisting of the crews of the entire service.

It is believed that such a measure, when it becomes effective, will not only enable an immediate and effective safeguard to the Department against the evils herein recited, but will be the means of raising the efficiency throughout the service and tend in the end to a more economical operation of the same.

OWNED SERVICE.

This service consists of 16 vessels operated as required by law for the transportation of troops, animals, and supplies for the Army. These vessels were engaged in service or stationed at the close of the fiscal year as follows:

Name.	Class.	Location.
PACIFIC COAST.		
Burnside.....	Cable ship.....	Repairing cable.
Crook.....	Troop ship.....	In service Interior Department, Seattle to Anchorage.
Dix.....	Animal and freight ship...	Trans-Pacific service.
Logan.....	Troop ship.....	Do.
Sheridan.....	do.....	Do.
Sherman.....	do.....	Do.
Thomas.....	do.....	Do.
Stocum.....	Tug.....	In service, San Francisco.
ATLANTIC FLEET.		
Bulford.....	Troop ship.....	New York-Canal Zone service.
Kilpatrick.....	do.....	Do.
McClellan.....	Refrigerating ship.....	
PHILIPPINE FLEET.		
Liscum.....	Troop ship.....	Interisland service.
Merritt.....	do.....	Do.
Warren.....	do.....	Do.

MOVEMENTS OF TRANSPORTS.

Pacific coast.—The monthly sailings to Manila have been maintained throughout the year without interruption.

For the purpose of carrying out the extensive program of construction planned for Schofield Barracks, the transport *Sherman* was placed into service for the transportation of lumber, cement, and other building material from the Pacific coast to Honolulu. This vessel sailed from the Pacific coast to Honolulu. This vessel also sailed from San Francisco to Bellingham, Wash., on March 29, 1916, where a cargo of lumber was taken and the transport sailed for Honolulu on April 9, 1916. This service was continued, and at the close of the year this vessel was at Bellingham loading lumber for Honolulu.

The transport *Crook*, out of commission at San Francisco at the close of the last fiscal year, was placed in commission and left San Francisco for Seattle on July 21, 1916.

The agreement provides for the operation of the ship by the Quartermaster Corps, all expenses to be reimbursed by the Interior Department, as well as the expenses of ordinary repair required in operation of the vessel. The vessel made six round trips during the year and transported approximately 18,831.7 tons of material and 1,759 passengers.

The agreement entered into between the Secretary of War and the Secretary of the Interior for the operation of the transport *Crook*, and which expired in November, 1916, was extended for one year, and the vessel was used throughout the year for the transportation of railroad material from Seattle to Anchorage, Alaska.

The Army transport *Buford* at the beginning of the year was in Manila, and as this vessel was needed on the Atlantic coast, she left that port on July 2, 1916, for Newport News, Va., sailing first to Nagasaki and thence to Honolulu, proceeding from the latter port to Balboa, Canal Zone. The vessel took on a full cargo of coal at Nagasaki, but as she was light when arriving at the Canal Zone, instructions were given to take on a cargo of old iron awaiting shipment by the Panama Railroad Co. Approximately 2,500 tons were loaded and the ship sailed on August 29, 1916, for Philadelphia, where the cargo was unloaded and the vessel sailed for Newport News, arriving September 13, 1916.

The Ordnance Department of the Army requiring the shipment to the States of a large amount of sodium nitrate for use in the manufacture of explosives, this corps undertook the transportation of the same, and for this purpose the Army transport *Buford* sailed from Newport News on November 29, 1916, for Iquiqui, Chile, via the Panama Canal, arriving on December 27, 1916, and after loading a cargo of 3,154 tons of the nitrate the vessel returned and docked at Communipaw, N. J., where she discharged her cargo. The vessel made a second trip, leaving New York February 2, 1917, and arrived at Iquiqui, Chile, on February 22, 1917, where she took on a cargo of 3,345 tons of nitrate and arrived at Communipaw, N. J., on March 17, 1917.

This vessel left on a third trip and proceeded via Newport News for the purpose of taking on Engineer pontoon equipment, leaving that port for Cristobal and Iquiqui on April 2, 1917. Owing to inter-

national complications, through the declaration of war with Germany, however, it was considered inadvisable for the vessels of this Government to enter a neutral port, and the *Buford* was reached by radio on April 29, 1917, and directed to return to Cristobal.

Atlantic coast.—The *Buford* was held at Cristobal until May 4, 1917, when she proceeded to San Juan, P. R., for the purpose of transporting to the Canal Zone the Porto Rico Regiment ordered there for station to take the place of the Tenth Infantry, ordered to return to the United States. This transport arrived at San Juan on May 8, sailing from that port on May 14, with the Porto Rican Infantry, less one battalion, consisting of 25 officers and 905 enlisted men, and arrived at Cristobal on May 19, 1917.

After taking aboard the Third Battalion and Machine Gun Company, Tenth United States Infantry—14 officers, 370 enlisted men, with 24 first class, 21 second class, and 11 troop class—this transport sailed for Newport News on May 22 and arrived on May 29, 1917.

The *Buford* next sailed from Newport News for Cristobal via San Juan with 325 enlisted men of the Coast Artillery Corps and 435 tons small arms and 56 passengers, arriving at San Juan on June 21, and on June 24 sailed for the Canal Zone with the remainder of the Porto Rico Regiment.

The transport *Meade*, which had been at Newport News, Va. out of commission, was formally turned over to the Shipping Board on June 1, 1917.

The transport *McClellan*, refrigerator ship, was out of commission at Newport News, Va., until May 4, 1917, when under instructions of the Secretary of War the vessel was turned over to the Shipping Board, and subsequently was placed in service of the War Department for the shipment of frozen beef to Europe, in which service she was engaged at the close of the fiscal year.

The Army transport *Kilpatrick* during the year was in the regular service from New York City to Cristobal, Canal Zone, and for the purpose of transporting mules and horses purchased by the Quartermaster Corps in Jamaica for services in the Canal Zone, this transport sailed from New York City for Kingston, Jamaica, on July 20, 1916, arriving on July 28, 1916, where a cargo of animals consisting of 172 mules and 18 public horses and 1 private horse were loaded and the vessel proceeded to Cristobal, arriving August 1, 1916.

This vessel made a second trip to Jamaica, arriving at Kingston from New York City on August 28, taking on 51 animals and sailing for Cristobal on August 29, where she arrived on September 1, 1916.

On June 7, 1917, this vessel on the return trip from Cristobal to New York City sailed via Kingston, Jamaica, arriving at Hoboken, N. J., on June 16, 1917.

At the beginning of the fiscal year the Army transport *Sumner* was at Vera Cruz, Mexico, having been dispatched to that port upon request of the State Department for the purpose of bringing to the States American refugees. The vessel left Vera Cruz on July 2 for Port Tampa, where she arrived at quarantine on July 6, 1917, and proceeded from that port for Newport News, Va., via Ponce, P. R., transporting Porto Rican refugees taken aboard at Mexican ports. The *Sumner* arrived at Newport News on July 25, proceeded to New

York City on September 19, and was thereafter engaged in the regular service to the Canal Zone.

On returning from Cristobal on the regular trip, leaving there on December 4, 1916, with 18 first-class passengers, including 10 officers, 25 second class, 184 troop class, 141 tons of Army freight, and 799 tons scrap iron for the Panama Railroad Co., the transport *Sumner* ran aground off Barnegat Light, N. J., about 11 o'clock p. m. on December 11, 1916.

The following is an extract from the report of the accident made by the Steamboat-Inspection Service:

December 11, 1916, the U. S. Army transport *Sumner*, while on a voyage from Colon, Panama, to New York, N. Y., and approaching the coast of New Jersey, grounded, resulting in the loss of the vessel. The steamer carried cargo and a full list of passengers, but there was no loss of life.

At about 8 a. m. on the morning of December 11, 1916, the vessel was approaching the coast of New Jersey. Observations were taken for longitude, and worked up in the usual manner from latitude found at noon. At least three of the officers participated in it, as well as the captain. It was found that the result of the chief mate's work agreed with that of the master, but the calculations of the second mate placed the vessel approximately 9 miles farther west. The vessel proceeded on her course of N. 7 E., and at 7 p. m. the second mate was directed to take a sounding with the Thompson sounding machine. He did so, and reported to the master that 80 fathoms of wire had been run out and no bottom found. The master concluded from this that the vessel was considerably to the eastward of the position given by the morning and noon sights. During the afternoon there had been a haze or mist of varying density, at times approaching fog. No soundings had been taken during this time. At about 10 p. m. the fog was dense, and the ship was under slow speed with the fog signal sounding. At about 10.50 p. m. the ship stranded, and at daylight the position was estimated to be about a mile from Barnegat Lighthouse. No soundings had been taken other than the one mentioned. The position of the ship by the reckoning at the time the sounding was taken would, when plotted on the chart, show some 35 fathoms of water. Although there was a disagreement between the position found by the master and the second officer, whose calculations when checked seemed correct, and also between the probable depth of water and what should have been found had the ship been in the position plotted by the master, reliance was placed upon this sounding, and the vessel continued on her course, although it is well known that the nature of the soundings on the coast adjacent to the scene of the stranding is such as to reliably fix the position of the vessel. It appeared, therefore, that the stranding of the vessel was wholly due to the fact that no such soundings were taken, and in view of the circumstances Capt. Bruno E. Webber, master of the vessel, was charged with negligence, and as a result of his trial his master's license was revoked.

Arrangements were made by the depot quartermaster, New York City, with the Merritt Chapman Co. to proceed to the scene of the "sinking" for the purpose of pulling the vessel off, and in the meantime all passengers were taken ashore, and such of the cargo as possible was removed, including a portion of the scrap iron, which was thrown overboard.

The work of pulling the vessel off proceeded satisfactorily until the third day following the stranding, when, owing to the heavy seas which underpinned the bow and stern, leaving the amidship section as the only portion of the hull touching the bar, the superstructure gave way and the ship broke in half, dropping the two sections in deep water and flooding all compartments.

All hope of saving the ship was therefore abandoned, and at the close of the fiscal year the wreck, which was practically submerged, remained where the vessel originally stranded.

REPAIRS.

Total repairs San Francisco, including docking \$64,074. 36
 Total repairs Seattle..... ¹ 170, 414. 50

The above expenditures were made for the usual trip repairs after the expiration of each round voyage, except that the transport *Crook* had to undergo extensive repairs due to the unusual wear and tear incident to the transportation of heavy railroad and other material to Alaska.

Service for other departments.—Transportation has been furnished during the year for other departments of the Government and for the Insular Government of the Philippines, the value of which at tariff rates is approximately as follows:

Navy Department..... \$220, 802. 43
 Post Office Department, including 643,375.29 pounds of mail..... 69, 055. 33
 Philippine Government..... 249, 822. 18
 Other departments..... 388, 739. 95

Service performed by the transports.—The following statement shows a summary of the work performed by the transports during the year:

PASSENGERS.

	Sailings.	Officers.	En-listed men.	Civilians.	Total.
San Francisco to Philippine Islands.....	15	167	3, 962	160	4, 289
Manila to San Francisco.....	14	239	3, 567	330	4, 136
Seattle to Manila.....	4				
United States and Canal Zone.....	12	139	5, 327	80	5, 546
Other ports.....		458	10, 122	534	11, 113
Total.....	45	1, 003	22, 978	1, 104	25, 084

CARGO.

	Animals.	Freight.	Re-mains.	Lumber.	Mails.	Money (dollars and pesos).
		<i>Tons.</i>		<i>Feet.</i>	<i>Pounds.</i>	
San Francisco and Philippines.....		7, 892. 27	2		260, 991	\$84, 427, 000. 00
Philippines and San Francisco.....		18, 661. 74	77		118, 016	P 362, 000. 00
Seattle and Philippines.....	695	14, 173. 14				P 626, 117. 15
San Francisco and Honolulu.....		7, 535. 52	1	122, 629	107, 265	
United States and Canal Zone.....	114	25, 952. 70	3		215	
Other ports.....	598	42, 402. 70	38	1, 459, 998	147, 899	\$119, 500. 00
Total.....	1, 407	116, 618. 07	121	1, 582, 627	643, 376	\$84, 546, 500. 00 P 988, 117. 15

= \$5,040,558.57 United States money (includes United States money and Philippine carried on transports).

Earnings and expenditures.—The transports have earned during the year in the performance of the above service, based on the lowest rates for similar service, the following amounts:

For passengers..... \$1, 443, 927. 48
 For cargo..... 1, 827, 193. 08
 Total..... 3, 271, 120. 56

¹ Extraordinary repairs to *Crook*, \$141,294.86.

At public commercial rates the earnings would be:

For passengers.....	\$1,443,927.48
For cargo.....	1,996,566.40
Total.....	3,440,493.88

No credit has been taken in the above statement for the transportation furnished for the families of officers, soldiers, and employees, or of other persons not entitled to transportation at the expense of an appropriation of the United States or of the Philippine Government; aggregate value of such service during the year is \$840,097.47.

The total expenditures for operation and maintenance of the transports during the fiscal year were as follows:

	In commis- sion.	Out of com- mission.	Total.
Wages of officers and crews.....	\$690,625.66	\$14,012.70	\$704,638.36
Repairs.....	274,897.79	20,381.62	295,279.41
Fuel.....	451,148.16	1,741.27	452,889.43
Deck, engine, and steward's supplies.....	532,258.57	3,474.25	535,732.82
Miscellaneous.....	203,515.13		203,515.13
Total.....	2,152,445.31	39,609.84	2,192,055.15

The shore expenses for the entire service, including proportionate part of the salaries of officers, commutation of officers' quarters, wages of employees, rent of offices, warehouses, wharves, etc., were as follows:

San Francisco.....	\$60,101.78
Seattle.....	10,980.43
Newport News.....	5,433.08
New York City.....	15,947.37
Honolulu (estimated).....	5,000.00
Nagasaki (estimated).....	9,000.00
Manila (estimated).....	8,000.00
Total.....	114,462.66
Grand total.....	2,306,517.81

No account has been taken in the above statement of expenditures for the cost of operating the transport *Burnside* engaged in cable-repair work for the Signal Corps, the total of which for the year was \$107,076.69.

It is believed that this amount should be deducted from the total cost of operating the service since the work of the *Burnside* was not performed in the interest of the Quartermaster Corps, leaving the net cost to the Government for the operation and maintenance of both active and inactive transports during the year \$2,199,441.12.

Recapitulation.

	Lowest com- mercial rate.	Public com- mercial rate.
Earnings of the transports during the year.....	\$3,271,120.56	\$3,440,493.88
Expenses of operation and maintenance during the same period.....	2,199,441.12	2,199,441.12
Savings to the Government by using the transports over the same service by commercial.....	1,071,679.44	1,241,052.76

PHILIPPINE ARMY TRANSPORT SERVICE.

The owned transports *Liscum*, *Merritt*, and *Warren* which have been operated during the year, made trips to various points in the Philippines and China.

The collier under construction at the Shanghai Dock & Engineering Co., Shanghai, China, for use in supplying coal for the various departments of the Philippines, was about completed during the year, but due to the delay in the supply of certain parts being manufactured in England and the fact that certain defects developed in the coal-carrying chutes which prevented the operation of this portion of the auxiliary machinery, this collier had not been put into service at the close of the fiscal year.

The repairs to the *Warren*, in progress at the beginning of the fiscal year to prepare that vessel for service as a coal carrier, were finally completed, and the vessel has been making regular trips between Manila and China during the year.

CHARTERED TRANSPORT SERVICE.

Vessels in service June 30, 1917.

Name of ship.	Owner.	Tonnage (gross).	Capacity.			Rate per registered ton per month.
			Officers.	Men.	Freight.	
<i>Antilles</i>	Southern Pacific.....	6,879	168	1,060	.....	\$12.00
<i>Ed. Luckenback</i>	Luckenback Co.....	7,900	.....	.....	1,609	10.00
<i>El Occidente</i>	Southern Pacific.....	6,008	.....	.....	1,613	10.00
<i>Finland</i>	Inter. Mar. Co.....	12,222	520	1,450	.....	12.00
<i>Havana</i>	New York & Cuba Steamship Co.	6,391	243	1,244	.....	12.00
<i>Henry R. Mallory</i>	Mallory Steamship Co.....	6,063	76	1,509	.....	12.00
<i>Leopae</i>	Clyde Steamship Co.....	5,179	130	1,100	.....	12.00
<i>Momus</i>	Southern Pacific.....	6,879	168	1,120	.....	12.00
<i>Pastores</i>	United Fruit Co.....	7,781.1	121	1,212	.....	12.00
<i>San Jacinto</i>	Mallory Steamship Co.....	6,089	80	1,100	.....	12.00
<i>Saratoga</i>	New York & Cuba Steamship Co.	6,391	143	1,259	.....	12.00
<i>Tanadorea</i>	United Fruit Co.....	7,782.63	131	1,203	.....	12.00
<i>City of Savannah</i>	Ocean Steamship Co.....	5,654	.....	.....	.....	12.00
<i>Montanan</i> ¹.....	.....	.....	.....	.....	.....	.....
<i>Dakotan</i> ².....	.....	.....	.....	.....	.....	.....
<i>Flo. Luckenback</i>	Luckenback Co.....	4,930	.....	.....	.....	10.00

¹ Animals.

² Commandeered, subsequently chartered.

Charter rates.—Much difficulty was experienced in securing vessels at any price, and owing to the scarcity of tonnage and the high prevailing rates, a conference was called with the representatives of the War Department, the Shipping Board, and the respective steamship companies, resulting in an agreement of \$12 per gross ton per month for passenger vessels and \$10 per gross ton per month for freighters; for the ship alone, the Government assuming all expenses for operation, marine insurance, repairs, and allowing a stipulated valuation, according to the ascertained value of the vessel, in case of loss.

Repairs.—The work of refitting the different vessels originally taken into service was accomplished under the supervision of the general superintendent, Army transport service, New York, in most cases by the firms usually doing this work for the respective owners, and in this way the work on all the vessels was proceeding at the same time, thereby placing the entire fleet in readiness for service at practically the same date. Arrangements were under way however,

at the close of the year for the accomplishment of this work at the navy yards under the jurisdiction of the Navy Department on account of the War Department.

HARBOR BOAT SERVICE—UNITED STATES.

Owned service.—In the various harbors along the Atlantic, Pacific, and Gulf coasts and rivers tributary thereto, the following vessels were operated by the Quartermaster Corps during the fiscal year 1917:

- 6 first-class steel mine planters.
- 2 cable steamers.
- 2 ferry steamers.
- 24 freight and passenger steamers.
- 23 tugs and artillery steamers.
- 3 lighters.
- 36 steam and gasoline launches.
- 28 distribution box boats.

The 129 owned vessels listed above and 138 mine yawls and miscellaneous small craft perform Quartermaster, Artillery, and Signal Corps work. The total operating expenses for all of these vessels for the fiscal year (including wages of officers and crews, repairs, fuel, supplies, water, etc.) were \$1,174,650.92. These vessels carried 2,616,-469 passengers and 171,088,062 pounds of freight.

Chartered service.—It was necessary during the fiscal year 1917 to charter vessels at a number of the coast defenses to supplement the owned service, it having been found that the owned service was entirely inadequate to take care of additional war-time requirements. These vessels have been engaged in connection with the transportation of freight and passengers, cargo lighterage, towage, vessel tracking, subcaliber tracking, etc., e. g., in every class of work that is being performed continuously by vessels of the owned harbor boat service. The cost of hire of these boats for the fiscal year has amounted to \$118,448.90.

Vessels lost.—The following boats were lost at Fort Morgan, Ala., during the hurricane of July 5, 1916: *Captain Page*, distribution box boat No. 23, and mine yawls Nos. 60 and 61.

Vessels acquired.—Contracts were entered into during the fiscal year 1917, for the supply of the boats listed below:

Awards were made for construction of fifteen 64-foot distribution box boats as follows:

Rochester Boat Works, Rochester, N. Y., five distribution box boats at a total cost of \$130,000.

Greenport Basin & Construction Co., Greenport, N. Y., eight distribution box boats at a total cost of \$225,000.

Ivan Chilman, Hoquiam, Wash., two distribution box boats at a total cost of \$48,000.

Two of these boats will be stationed as follows: One at Fort Monroe, Va., and one at Fort Williams, Me.

It has not been definitely decided as yet to what stations the remaining 13 vessels will be assigned.

One 50-foot launch for service at Fort Morgan, Ala., was awarded to Duncan McTaggart, Mobile, Ala., at a cost of \$14,985. This boat, construction of which has just been commenced, has not as yet been named.

Three barges, intended for service in the Panama Canal Zone, are at present in the course of construction, the work in connection therewith being performed by the Panama Canal. The estimated cost of this construction is approximately \$8,100.

One small gasoline launch for service at Fort Kamehameha, Hawaii, under contract with George W. Knease, at a cost of \$4,750. This launch will be named *Lieutenant Le Grand B. Curtiss*.

One wooden barge was completed and delivered to the Government on July 21, 1917, a contract having been made with Duncan McTaggart, Mobile, Ala., for the supply of this boat at a total cost of \$685.50. This boat has not as yet been named. It will be placed in service at Fort Morgan, Ala.

HARBOR BOAT REGULATIONS.

In view of the fact that the stock of harbor boat regulations had become exhausted, a new edition of these regulations, embodying a few minor changes and including the changes which had previously been made and published as changes to harbor boat regulations, was printed.

RAIL TRANSPORTATION.

Cooperation between the transportation companies and the Quartermaster Corps.—Throughout the fiscal year the close cooperation established in preceding years between the transportation companies of the country and the Quartermaster Corps was continued and developed along the line outlined in a pamphlet published by this office in February, 1916, and the relations established with the various transportation associations were broadened and a firmer and more general plan for mutual cooperation was greatly extended.

The closer coordination of the railways of the country and the Quartermaster General's Office began as far back as the year 1905 when the Accounting Officers' Association of the railways first established a committee in conjunction with the other departments of the Government for the purpose of standardizing the forms and methods of procedure in transportation. The Quartermaster General's Office was represented on this committee, and, as a result, the first effort at coordination between the railways and Government officials bore fruit in the standardized form of bill of lading and transportation request made general for all departments of the Government through the agency of the Treasury Department, the duty of which department is to prescribe forms.

This department continued in its efforts to effect a more complete understanding between the railways of the country and those upon whom the duty of transportation for the Government devolved.

In May, 1914, at the time of the Vera Cruz incident, the Quartermaster General's Office took up with the American Railway Association, the operating association of the railways, the subject of coordination of the railways and the Government for transportation of large bodies of troops and military supplies in emergency. At this time a request was made for location of an officer of the American Railway Association in Washington who would be in position to advise with the Quartermaster Corps on the subject. The American Railway Association was prompt in responding to the request but

the emergency at that time passed and complete arrangements were not effected.

The executive committee of the American Railway Association in October, 1915, at the request of this office, appointed a sub-committee to confer with the Secretary of War and with those charged with the duty of transportation for the Army and its supplies. This committee was in frequent session with the transportation division of this office in the spring of 1915. During the progress of discussions produced as the result of these meetings, plans were laid for mutual cooperation when on June 18, 1916, orders were issued for the mobilization of the militia of the several States.

Plan of coordination.—The general plan proposed by this office was promptly adopted. By this plan the American Railway Association designated officials, thoroughly conversant with all railway requirements, for duty at mobilization camps and various department headquarters, and also established in Washington a bureau for the handling and distribution of passenger equipment necessary for the movement of troops and their return. The manner in which the work of the American Railway Association committee on cooperation with the military authorities was conducted at the time of the mobilization was commented on in the last annual report of the Quartermaster General taken up and highly commended by the Chief of Staff and the Secretary of War. The President of the United States warmly congratulated the American Railway Association for its patriotic efforts.

On February 16, 1917, there was created the special committee on national defense of the American Railway Association. The Council of National Defense was created by provision contained in the military appropriation bill for the fiscal year 1917, and had for its object the coordination of industries and resources for the national security and welfare. Mr. Daniel Willard, president of the Baltimore & Ohio Railroad was appointed by the President as a member of the advisory commission and was designated as chairman of the committee on transportation and communications. At a meeting in February, 1917, the special committee on cooperation with the military authorities was enlarged to 18 members and designated as a special committee on national defense. A meeting of this committee was held in Washington on March 1 at which this office presented the plan for cooperation so far as military transportation was concerned and definite plans were presented which have been closely followed by the special committee on National defense in expanding and elaborating its activities. An executive committee was later created which has come to be known as the railway war board and directs not only the operations of the roads effecting military movements but also coordinates the operating roads with one another and with the public. The special committee was still further enlarged to include 28 members and a suitable representation given to each of the six military departments of the Army; later the committee was enlarged to 33 members, all of whom are the leading executives of the principal railroads of the country.

The special committee on national defense is a voluntary organization of the railways, serving purely through a spirit of patriotism. Its activities have been extended far beyond what was originally contemplated, even for the military service. The railroads of the country are operated practically as one continental system with the

result that the congestion, which would have been intolerable without such an organization, has been in every case ameliorated and in many cases completely removed. The railroad war board has been in practically continuous session at Washington since April 23. No more patriotic or self-sacrificing body of men is at this time serving the Government. Its offices are established at the expense of the railroads, maintained at their expense, and all of those connected with the operations of the office have their salaries paid by the railroads. The influence of the executive committee thus established, with permanent headquarters and a staff of experts and employees wholly at the expense of the railroads of the United States, extends from the most complicated movements of troops and military supplies to the coal that is supplied to the kitchen range in the humblest home. The commission regulates car supply, preferences as to the various classes of supplies, movements through congested areas, duplication of service by roads operating in the same territory, coordination and cooperation in the facilities of the various roads with one another. In all its activities it has taken the broadest possible view covering the needs of the entire Nation. It has extended to the distribution of power between the railroads, the adjustment of passenger-train service in accordance with national requirements, has furnished personnel and matériel for rehabilitation of the railways in France, has aided in every way possible in the great national endeavor which has now become the duty of every citizen of the country.

It has been hoped that the matter of simplification of freight tariffs could have been made the subject of this annual report. This matter is the only one that is still in abeyance, as recommended in the original pamphlet on cooperation published by the officer in charge of transportation in the office of the Quartermaster General.

The railway executive committee has perfected, in cooperation with the proper officers of this department, a complete scheme for cooperation of the movement of troops and supplies of every description. In addition, the activities of the committee has extended to the requirements of the Department of Agriculture, food controller, and in fact to all cases which require emergency attention. Under the law, preference is given to transportation of troops and war material over all other traffic.

The work of providing and assembling vast quantities of supplies and equipment of all kinds has been under way throughout the summer. The part of the railroads thus far has been largely that of providing for expediting the shipment of raw materials, some of them from unusual sources of supply creating new currents of traffic. During this, the railroads have also been called upon to organize for the work that is now being carried on, that of the mobilization of the armies, including recruits to the Regular Army, mobilization and concentration of the National Guard, and mobilization of the National Army, amounting in all to more than 1,000,000 men. This work is at the time of writing proceeding with a smoothness and alacrity born of careful consideration and the result of experience that speaks in the highest terms of applicability and efficiency of the railroad service in this country.

When it is understood that this enormous amount of work, including the transportation of material and the mobilization of troops

is taking place without the suspension of commercial traffic and practically without inconvenience to the public, the task of those engaged in the operation can be well understood. Whilst it may be necessary in some instances in isolated cases to suspend or divert commercial traffic, it is not believed that any extensive suspensions of this kind will be necessary. The roads, in conjunction with the representatives of this department, have carefully adjusted the schedule of troops moving, increments of the Regular Army, members of the National Army, and the troops of the National Guard as well as troops moving toward ports of embarkation, in such a manner that it is not anticipated there will be any interference amongst these military movements and practically no interruption of public traffic.

The provision, found so successful last year, to place general agents at the various department headquarters and military camps, is made a part of the general plan of cooperation. Similar officials on military transportation accounting are furnished at each headquarters and at each military camp or cantonment. The advantages that will result from this close coordination in the settling of accounts will be of the greatest possible value. The subcommittee on military passenger traffic has been of the greatest value in arranging the routing of troops over lines that have been able to expeditiously effect their movements.

All passenger rates and accountings were simplified and standardized for military passengers, and an agreement was signed which produced a uniform system and rates for all military passenger traffic over practically all roads throughout the country. The result has been the enormous simplification of the settlement of accounts, reduction in correspondence, and a saving in expense to the Government.

Bulletins were published during the year indicating the relations between the various railway officials at department headquarters and the various camps, and in general, prescribing their duties in such a manner as to give the closest cooperation in providing for movements of troops and war material.

The Master Mechanics' Association has furnished the department with plans for the conversion of all ordinary freight cars, flat cars, and cattle cars into temporary passenger cars; also for converting ordinary day coaches into hospital cars and combining them in hospital trains; also similar plans for improvising hospital trains from ordinary box cars in cases of emergency. The same association has furnished plans for converting all classes of railway equipment so that it can be readily utilized for military troops to carry supplies and munitions and for both light and heavy guns.

By centralizing the management of the Pullman-car service and coordinating it with the requirements of military transportation, and associating it with the central office of the war board, great advantage in coordinating troop movements has been secured.

The cooperation of the war board, the representatives of the American Railway Association, the representatives of the Accounting Officers' Association, the Passenger Traffic Association, the Freight Traffic Association, the Master Car Builders and Master Mechanics Association, with their expert knowledge of transportation conditions, have solved a problem for the Government that could not otherwise have been met.

It is believed that the careful plan of cooperation which has been adopted by the transportation interests of the country has demonstrated that the problem of rail congestion has practically been solved. With the experience obtained in the past in placing these plans in operation, the movements now going on, although many times greater than those effected in the summer of 1916, are proceeding with practically no congestion and with little disturbance to commercial traffic.

The public little knows the tremendous effort, constant exercise of forethought, enormous expense, and self-sacrificing devotion to duty and the patriotic spirit in which the railway officials and their subordinates throughout the country are lending themselves to the military requirements. This phase of our national defense should be more clearly understood by those who are benefited by it, and it is believed appropriate in this report to invite the attention of the public to the manner in which the railroads of the country are responding under most trying circumstances not only to the needs of the military service but to the country at large. It is deemed proper for this office to state that of those who are serving the Nation in this time of stress there are none who are doing so more wholeheartedly, unselfishly, and efficiently than the railroad officials who are engaged in this patriotic work.

LAND TRANSPORTATION.

Freight and passengers transported.—During the fiscal year there were transported by the Quartermaster Corps in the United States (exclusive of transportation on transports and other owned vessels) 787,913 passengers, 144,253 animals, 1,025,596 tons of freight, \$16,783,619.95 in funds, and 834 remains of officers, enlisted men, and civilians, as shown by the following statement:

	By railroad.	By commercial vessel.	By wagon or stage.	By express.	Total.
Passengers:					
Officers.....	18,965	477	52		19,494
Enlisted men.....	735,287	15,529	803		751,619
Civilians.....	15,856	922	22		16,800
Total.....	770,108	16,928	877		787,913
Animals:					
Horses.....	97,237	642		12	97,891
Mules.....	46,178	176		8	46,362
Total.....	143,415	818		20	144,253
Stores (tons):					
Quartermaster.....	705,785	60,015	67,801	12,612	847,213
Ordnance.....	61,277	24,544	1,032	745	87,598
Medical.....	8,368	2,273	8,129	421	19,191
Engineer.....	9,559	466	16	95	10,136
Signal.....	8,452	1,470	8	181	10,111
Miscellaneous.....	26,895	24,500	376	575	51,846
Total.....	819,336	113,268	77,362	15,629	1,025,596
Funds.....	\$5,850,202.70			\$10,933,417.25	\$16,783,619.95
Remains.....	98	1	18	717	834

Included in the above figures are 3,883 passengers, 35,430 ships' tons of merchandise, 456,970 board feet of lumber, and 486 animals, forwarded in deep-sea commercial vessels, at a cost of \$232,185.54, as shown below:

Shipments in deep-sea commercial vessels.

	Passengers.	General merchandise.	Lumber.	Animals.	Cost.
American vessels:		<i>Tons.</i>	<i>Feet b. m.</i>		
To Alaska.....	215	3,798	351,000	50	\$95,205.37
To Canal Zone.....	480	3,013		206	77,347.70
To Philippines.....		828			20,051.14
To Hawaii.....		20,386	106,970	213	147,365.04
From Hawaii.....	157	139		4	2,167.30
To Porto Rico.....	73	1,650			31,444.45
To other ports.....	2,782	12		4	195,870.01
Total American vessels.....	3,707	29,821	456,970	486	669,451.01
Foreign vessels:					
To Canal Zone.....		471			14,079.35
To Philippines.....		5,018			123,854.18
To other ports.....	186	120			20,801.00
Total foreign vessels.....	186	5,609			168,734.53
Grand total.....	3,893	35,430	456,970	486	838,185.54

Transportation furnished for other Government departments and bureaus.—Under the act of July 5, 1885 (23 Stat., 111), the Quartermaster Corps is required to receive, transport, and be responsible for all property turned over to it by the officers or agents of any other Government department or bureau, the amount paid for such transportation being refunded by the department or bureau to which such property pertains.

During the fiscal year 1917 the Quartermaster Corps issued 187 transportation requests and 1,532 bills of lading, covering transportation of persons or property for other departments or bureaus of the Government.

The accounts covering this transportation are prepared by officers of the Quartermaster Corps and forwarded to the department or bureau concerned for payment; the number of vouchers required to state these bills of lading and transportation requests was 1,288, and the estimated cost of the clerical work in the issuance of these transportation requests and bills of lading, and the preparation and handling of the vouchers connected therewith, is \$514.82, for which the Quartermaster Corps received no reimbursement.

Transportation of militia and National Guard organizations.—During the fiscal year 1917 there were transported to the Mexican border 122,740 militia and National Guard troops at a cost of \$4,489,284, and a total of 158,110 militia and National Guard were returned to their home stations on muster out at a cost of \$5,786,826. The difference in the number transported to the border and those returning during the fiscal year 1917 is due to the fact that 35,370 were sent to the border during the fiscal year 1916.

Drayage and hauling.—During the fiscal year 1917 the cost of drayage, cartage, and hauling was \$88,861.60, as shown below:

Drayage at posts.....	\$45,487.04
Drayage at depots and arsenals.....	43,374.56

The bulk of the expenditures for hauling at posts is incurred at posts in Alaska and the Canal Zone, where owned means of transportation is insufficient; at Coast Artillery posts in the United States

that are situated on islands, necessitating hauling from railroad stations to docks; and at some of the western posts that are situated a considerable distance from railroad, such as Fort Apache, Ariz., and Fort Clark, Tex.

The approximate division of the amount shown above is as follows:

Alaska.....	\$16,000
Canal Zone.....	5,000
Coast Artillery posts.....	8,000
Interior western posts.....	12,000
Miscellaneous posts.....	4,000

The drayage at depots is incurred at cities where owned means of transportation is either unavailable or insufficient.

Transportation accounts acted on.—During the fiscal year 1917 a total of 1,456 transportation accounts, aggregating \$591,869.88 were received and acted on in the transportation division, office of the Quartermaster General, as shown below:

Accounts payable from appropriations pertaining to other bureaus of the War Department (577).....	\$20,482.62
Disputed accounts payable from appropriation "Supplies, services, and transportation" (879).....	571,387.26

The accounts prepared by the disbursing officers of the Quartermaster Corps, covering transportation payable by other departments of the Government, are forwarded direct to such departments for payment. The accounts paid by the disbursing officers from appropriation "Supplies, services, and transportation" are not received in the transportation division, but pass through the finance and accounting division to the Auditor for the War Department, the 879 accounts above referred to being those in which disputes have arisen as to the proper basis of settlement.

The four offices of the Quartermaster Corps charged with the settlement of transportation accounts during the fiscal year 1917 paid transportation accounts, in which were included a total of 136,790 transportation requests and 113,551 bills of lading.

MOTOR TRANSPORT.

During the fiscal year 1917 a large part of motor-transport activities was confined to the Southern Department. The unsettled conditions along the Mexican border rendered it necessary to employ motor transport extensively to supply the troops on the border and in Mexico.

During the period when the punitive expedition was operating in Mexico, the expedition was supplied almost entirely by means of motor trucks. In addition to the troops in Mexico those troops stationed along the Mexican border were supplied by motor trucks whenever the distances were so great as to render animal transport difficult or wherever the roads were satisfactory or at all suitable for truck transportation. This experience rendered it possible for the department to pursue its investigation in the matter of motor transport under conditions unusually favorable for the development of a type of motor truck suitable for the military service.

As a result of the above, with the cooperation of truck manufacturers and engineers, covering practically all the principal

makers and the principal corporations in the country, valuable data were collected throughout the year and later on utilized for the standardization of a military truck.

At the time of the arrival of the first truck trains at Columbus, N. Mex., preparatory to crossing the border, there were no shops or other means available for repairs to trucks, aside from the repair trucks and machine-shop trucks that were forwarded with the trains. It immediately became apparent that extensive shops would have to be constructed if motor transport was to be kept in serviceable condition. Great difficulty was experienced from the beginning in securing competent machinists and mechanics for the personnel of such shops. Furthermore it was found that the task of procuring sufficient spare parts for trucks and machine tools for handling this work was greatly increased, due to the exceedingly bad road conditions in Mexico, resulting in rapid deterioration of trucks and creating a corresponding strain upon the shop facilities for their repair.

Thirteen different types of trucks made by eight manufacturers were sent into Mexico and along the border at the time of the operation of the punitive expedition. This fact added much to the difficulties of maintenance but proved to be a distinct advantage in that it gave a very severe test of all types of trucks and thus enabled the department to arrive at the relative merits of the different makes and the advantages of the various types and kind of construction. Careful data was gathered and later made use of in preparing specifications for the new military truck and ultimately in producing the standardized truck, which is at this time in process of manufacture.

When the punitive expedition was withdrawn from Mexico and conditions on the border quieted down, a large number of truck companies employed in Mexico and on the border became surplus. These had been run constantly for a period of a year or more, undergoing only such repairs as it was practicable to afford at short intervals whilst they were laid up. The shops established at El Paso and San Antonio for maintaining the repairs of these trucks have been actively operated in the rebuilding of a large number of trucks, and as truck companies have been rebuilt they have been distributed to various camps and cantonments occupied and to be occupied by troops of the National Army. Their utilization at cantonments has greatly decreased the cost of construction, and upon completion of construction they have become available for utilization by the troops to be stationed at these points. The touring cars, roadsters, and motorcycles which had been operated in the western district of the Southern Department suffered more severely than any other motor vehicles in the Southern Department and were as a rule in bad shape after six months' usage on the desert, as a result of sand, wind, storm, and general weather and road conditions.

The department has been fortunate in its ability to account for all cars. At the close of the fiscal year all cars were accounted for, including four which had been destroyed by fire or accident.

In March, 1917, the shops established at the Columbus base, New Mexico, were dismantled and the transfer of the machinery of these shops was completed in May, 1917. Since February 6, 1917, 567 trucks and 24 automobiles were shipped from the Southern Department to other departments, all of which were completely overhauled

before shipment was made. Since the close of the fiscal year the work of rebuilding these trucks and cars has made constant progress, and as fast as completed, trucks and cars have been placed in operation, as above stated, at various camps and cantonments.

Exhaustive tests of trucks, tractors, and trailers have been made in the Big Bend district from Marfa, Tex., to points on the Mexican border, varying in distance from 86 to 129 miles over mountainous country, where poor roads, steep grades, and long stretches of sand form a combination to demonstrate whether motor transport would meet the Government requirements. Tests were made under the following conditions:

1. Before trucks are regarded as suitable for military field service they will be required to undergo the following test to the satisfaction of the Quartermaster Corps:

The Quartermaster Corps will afford truck manufacturers that comply with specifications for military trucks an opportunity to test their trucks under service conditions in accordance with the following provisions:

- (a) Trucks will be leased to the Quartermaster Corps at a nominal rental for a period of time necessary to operate over a distance of 2,000 miles.

- (b) The Quartermaster Corps will furnish the necessary chauffeur and services for the operation of the truck.

- (c) The Quartermaster Corps will provide the necessary oil, gasoline, and other materials necessary for its operation.

- (d) The truck will be maintained in physical condition by the Quartermaster Corps, except that broken parts will be replaced and changes in construction will be made at the expense of the manufacturer.

- (e) The truck will be delivered to the Quartermaster Corps at the point designated by the officer conducting the test, and will be returned to the manufacturer at the point where the test is concluded.

The object of this test is to determine the suitability of each make of truck for the military field service, and to develop any inherent weaknesses for the service that may be possessed by the truck, with a view to their being corrected, if practicable. With this object in view, it is recommended that a suitable engineer representing the manufacturer observe the operations of the truck to such extent as may be found desirable.

2. Trucks must be manufactured according to specifications issued by the Quartermaster Corps, as modified by specific information filed on the part of the manufacturer with his bid, under the provisions of paragraphs 15, 16, and 18, specifications.

3. When purchasing trucks, the Quartermaster Corps will inspect them at the factory, and may, at its option, require a continuous run for trucks of not less than 100 miles, fully loaded, over such character of roads as the inspecting officer may consider desirable.

These tests were made at very little expense to the department, as manufacturers were anxious to submit these cars for military test at a nominal rental of \$1 per month.

Both the Government and the manufacturers have been greatly benefited thereby, and the weak points of motor units were brought out, and the manufacturers were able to make changes in construc-

tion which otherwise might not have been discovered until after a long interval of time.

The capacity of the shops that were established at San Antonio, Brownsville, and El Paso is as follows:

Those at Brownsville have a capacity of maintaining about 500 machines; those at San Antonio have a capacity of maintaining about 1,000 machines; and those at El Paso have a capacity of maintaining approximately 1,500 machines.

Development of the standard military truck.—During the year 1916 the officer in charge of the transportation division of the Quartermaster Department maintained close relations with the Society of Automotive Engineers, and, in conjunction with the committee of that society, prepared a draft of military truck specifications for the department. The truck-standard division of the Society of Automotive Engineers entered earnestly into cooperation with the department and with representatives from other bureaus of the War Department, with a view of providing suitable specifications for military trucks.

In order to obtain as complete advice as possible, the society, at the request of the Quartermaster Corps, called officials of the National Automobile Chamber of Commerce into conference, and asked representative truck manufacturing companies to send their chief engineers to a meeting at the society's rooms to consider the military truck needs of the Government. The meeting was held with 50 or more engineers and others present.

The action taken at this meeting was to appoint a representative committee to study the draft of specifications of the Quartermaster Corps, which division has been continued to date substantially as follows: It is constituted of engineers of five companies manufacturing trucks, five companies assembling trucks, and engineers of a truck factory not making the type of trucks being deliberated upon, and the truck engineer of the Quartermaster General's Office.

After careful study of the motor-truck situation and the development which it is likely to attain under exacting conditions, the above committee continued to study the requirements of the military truck, and at joint meetings with the War Department motor transport board produced a revised draft of specifications, which was issued toward the close of the last fiscal year.

There were still many imperfections in these specifications inasmuch as no manufacturers were actually creating a truck or parts of a truck that would fully meet the requirements of the military service as determined by the experience shown in Mexico, on the border, and in Europe. This situation naturally led to a further study and investigation into the best means of attaining a standard truck. The engineers of the various units that entered into the construction of a truck, including the transmission makers, engine makers, axle, spring, universal joint, radiator, frame and fan manufacturers, were invited to a general conference. The purpose in mind was not to modify the War Department's specifications but to bring about such interpretation of them as would result in the production of parts, as well as complete trucks, in sufficient numbers to supply the Army adequately with trucks of proper type, the assembly units to be interchangeable so far as possible and to a limited extent the parts

of units of different makes were to be interchangeable. The manner in which truck and parts manufacturers have cooperated in this work has been most gratifying and has afforded an additional manifestation of patriotism in a matter of vital importance in military operations.

Complete standardization.—At the request of the Quartermaster Corps a committee consisting of the leading truck designers of the country was selected by the Society of Automotive Engineers to design a standard military truck that would meet all the requirements of hard military service, and that could be built by the largest possible number of factories, and that would at the same time enable the separate parts makers of the United States to use their factories to the best advantage in turning out the parts needed for these trucks. This committee promptly took up this work and has labored night and day at its task. The result has been most satisfactory and the progress made has laid at rest one after another those doubts which in the beginning were very general. The sample truck designed by this body will be on exhibition and in operation by the first week in October, and it will be in production by January 1, 1918, from which date it is intended the needs of the Army shall be supplied this one uniform type of standard truck. In the production the broadest experience of the most expert assistants has been procured, and it is believed by those competent to judge that this truck will be able to meet the most exacting requirements that war conditions can impose upon it. An additional advantage is that it will be possible to manufacture this truck in much larger quantities than could have been produced by each manufacturer working on a different type of truck. The great advantage, however, will be to lessen the stock of spare parts that it will be necessary to send to the theaters of operation for the repair of trucks, and thus the problem of maintenance will be solved, a problem that has been most distracting to the armies of the allies in consequence of the great number of military trucks of different makes that they have been obliged to make use of. In designing this standard truck the engineers have had the advantage of the experience gained in Mexico and along the southern border, as well as that gained with the allies in Europe, and features that have proven undesirable on the usual commercial vehicles have in every case been eliminated.

The engineers and manufacturers, who have aided in this work through a spirit of patriotism, have given their time and their energy and their advice without monetary reward, and in many instances they have entered into this patriotic service at a distinct disadvantage, inasmuch as the success of this truck will in some instances detract from the importance of the product now produced by individual makers. The engineers working on this design have put at the disposition of the department the best products of their brains. In many instances they have put forward thoughts, designs, and suggestions that might by their own development and by applications for patents have produced golden streams of wealth. Of those who are now pressing forward and contributing their services for the purpose of accomplishing the ending of the war, none have given greater or more patriotic service than this body of highly trained, highly educated, and high-minded motor-truck specialists. The department feels that to them its thanks are due.

Motor transportation purchased during the fiscal year, except in the Philippine Islands:

	Cost.
1,396 motor trucks.....	\$3,701,958.96
420 automobiles.....	416,343.72
645 motorcycles.....	192,168.00

Motor transportation in use June 30, 1917, except in the Philippine Islands:

2,965 motor trucks.....	8,223,719.94
58 motor tank trucks.....	196,100.00
12 motor machine-shop trucks.....	41,603.00
6 motor wrecking trucks (repair).....	25,438.12
437 automobiles.....	454,632.88
670 motorcycles.....	190,801.51

Motor transportation condemned during fiscal year:

4 motor trucks.....	11,691.00
5 motorcycles.....	1,145.53

REMOUNT SERVICE.

For the Mexican border service a total of about 55,000 animals were purchased in a period of about three months. Only a few National Guard organizations reached the border with any animals. The purchasing officers for public animals of the Quartermaster Corps at Kansas City and about 20 officers of the mounted service from the Southern Department were charged with the work of buying animals. It was necessary to get the animals quickly.

The specifications as to height and weight for horses were reduced because there were many small horses in Texas, and it was hoped that a large number of the blocky type of small horse that would be hardy and serviceable could be obtained. It was found, however, that there were very few small horses of the blocky type. Most of them were narrow chested, ewe necked, flat ribbed, and cow hocked. These small horses proved to be unsatisfactory. The departure from the usual requirements as to height and weight resulted in laxity on the part of several inspecting boards, consequently many animals of unsuitable conformation were bought.

When the purchase of these animals commenced there was no place to send them. The construction of two auxiliary remount depots was authorized. One was built at Fort Bliss, Tex., and the other at Fort Sam Houston, Tex. The necessity for conditioning animals after purchase before issue to troops was demonstrated by our experience in the Southern Department. Over 90 per cent of all animals purchased contracted shipping fever or influenza at the stockyards or at stock pens where they were unloaded for feeding and watering when being shipped from the place of purchase to an auxiliary remount depot.

When animals were shipped direct to organizations about 10 per cent died from the influenza or other diseases, such as pneumonia and purpura resulting from the attack of influenza.

At the auxiliary remount depots, during a period of one year, the losses by death amounted to about 2 per cent as a result of the shipping fever and from all other causes.

The minimum period that should be allowed for conditioning animals after purchase at remount depots was found to be 20 days. When the Mexican border situation no longer required the services of the National Guard these troops were ordered home for muster out and the animals were turned back to the auxiliary remount depots,

except 32 horses per battery and troop, which were taken to home stations by most of the National Guard organizations. This left on hand a surplus of about 40,000 animals.

The least desirable of these animals, under orders from the War Department, were condemned and sold. The first increment of the enlarged Regular Army was supplied from this surplus on hand, and later many National Guard organizations were furnished horses and mules when they were called into service to guard public utilities. During the month of June, 1917, the animals for increments of the Regular Army were contracted for. The deliveries under these contracts were not completed by June 30. The report from organization commanders indicated that very satisfactory animals were obtained for our regular troops.

After the declaration of war the scarcity of regular officers made it necessary to find 50 officers of the Reserve Corps for duty in connection with the purchase of public animals. About 40 officers who had been appointed in the Quartermaster Reserve Corps had stated that they considered themselves capable of buying animals. After these officers were placed on remount duty it was found that only four of them had any knowledge whatsoever of horsemanship or any capability in judging as to proper conformation and soundness of animals. The Secretary of War then authorized the appointment of 50 additional captains in the Quartermaster Reserve Corps for this special work. The men selected for this duty are men of high standing in their communities and men of established reputations for integrity and horsemen of known ability. They volunteered their services in the grade of captain and many of them sacrificed large business interests to serve their country. These new officers were placed under instruction of the few regular officers remaining on purchasing duty, and they are now in charge of purchasing boards in various parts of the country.

When war was declared the remount branch was called upon to supply a vast amount of equipment and animals for the new armies.

Under the officer in charge of the transportation division one officer and four clerks were available for conducting the details of the remount service. The plans for purchasing the necessary equipment and animals were based on the principle that no individual, firm, or corporation should be permitted to make more than a reasonable profit in furnishing equipment and animals to the Government. The system of purchase by contract from the lowest bidder was not considered suitable for war conditions. It lacked the necessary flexibility and required too much time to put it in operation.

The methods of purchase adopted for buying of vehicles, harness and animals were as follows:

(a) The depot quartermaster at Jeffersonville, Ind., furnished the average prices paid to contractors for supplying vehicles under the competitive bidding system.

Representatives of the National Wagon Makers' Association were invited to Washington. A committee of these men agreed to take over the manufacture and delivery of the required supply of quartermaster vehicles at the prices determined upon. It soon developed that a large part of the wood stock for this large number of vehicles was still in the trees of the forest. The manufacturers called on the lumbermen, and this division arranged a plan whereby the wood

stock would be obtained and delivered to the manufacturers, the Government being obligated to take over such wood stock as might not be used in case the war came to an end and contracts were annulled.

(b) For the purchase and supply of harness the same method was followed as for vehicles, except that no national association of harness makers assisted in distributing the work. However, the leather committee of the Council of National Defense gave much valuable assistance in numerous instances by recommending methods of inspection, advising as to the prices that should be paid for leather, and for harness, and in securing reliable men for duty in inspecting harness.

The harness manufacturing business has been hampered by labor troubles due to the fact that the original contracts did not contain the eight-hour clause. When it became necessary to add a supplementary clause to each contract providing for an eight-hour day and time and half for overtime there had to be an adjustment of prices and several firms surrendered their contracts.

(c) For the purchase and supply of animals, it was thought from the first that a system of purchase in the open market would be advisable. A method was recommended and approved, but on representations made that the proposed prices were too high, it was ordered changed, and it was directed that animals be bought after competitive bidding from the lowest bidder. After buying the animals for the increments of the Regular Army a new system of open market purchase was inaugurated and is now in operation. (See Exhibit 10.)

The regulations for the purchase of animals were prepared in the remount branch. The depot quartermaster at each permanent remount depot and the quartermaster at Kansas City were made purchasing agents. The United States was divided into zones, with designated States assigned to each zone.

A plan for caring for the animals, including a system of auxiliary remount depots, animal embarkation depots, and field remount depots, was prepared in this office, and the remount service is now being organized under this plan.

Observations on thoroughbred stallions now standing at agricultural depots in connection with the remount service.—The most of the thoroughbred stallions now standing at remount depots are horses which have been presented by patriotic individuals with the idea in view of improving the breeding of the Army horse. They have not, however, been selected as "individuals" from a standpoint of conformation to serve this purpose. They are in this respect rather lacking in bone and substance and are not the type of horse which would be apt to reproduce the type of animal desired. These horses have either had an enviable racing career or else have been thought valuable on account of their blood lines. What is needed is the "individual," even though not so fashionably bred.

It should be made possible to purchase from racing establishments or breeders stallions of desirable conformation and type which have not developed sufficient speed to give them any value as race horses, but which would be valuable to the Government as sires, and they could be acquired at a very reasonable figure. Attention should be

paid to the family of the "individual" under consideration and it should be ascertained if his forebears have been horses of substance.

These stallions should be owned by the Government and stationed at remount depots where a proper supervision of the mares presented by the farmers would be exerted. This is a weak point of the present system, that entirely undesirable mares receive service from these thoroughbred stallions with the result of a very inferior product.

As a mixed gaited animal is rejected for Army purposes, whatever his other qualifications may be, saddle-horse stallions should not be standing at the agricultural depots. This type of horse is not suited from any standpoint to produce the kind of horse desired for Army purposes, as he usually develops mixed gaits in his get. It will be far more desirable to have at these depots Percheron or Clydesdale stallions which would, under proper discrimination of mares, produce draft animals which would be of service to farmers as well as valuable to the Government for Artillery purposes.

The light horses suitable for Cavalry are rapidly decreasing in numbers, for the reason that it is more advantageous for the farmer to breed a heavier horse which commands a better price and is more useful for farm work.

In order to counteract this condition appropriations should be increased so as to enable the Department of Agriculture to extend the plan of breeding which is now being conducted in the following States with the Government-owned stallions stated below:

	Stallions.
Vermont and New Hampshire.....	7
Virginia, West Virginia, and southern Ohio.....	18
Kentucky and Tennessee.....	12
Total.....	37

No constructive effort has been made heretofore in this country to produce horses of Cavalry and Artillery types. The object of the remount breeding work now being done by the Bureau of Animal Industry, Department of Agriculture, is to breed horses having quality, stamina, endurance, and conforming to Cavalry and Artillery types. Farmers must be educated to retain their best mares for breeding purposes and to properly feed and grow their colts.

The depot quartermaster, Fort Keogh Remount Depot, Fort Keogh, Mont., reports that the horse-producing States in the Northwest are improving the class of their range mares, this being particularly true in Montana and Oregon. This improvement is very noticeable in the horses purchased for Cavalry remounts and future years will show still greater progress. This improvement is not directed toward producing any particular type of horse, but the elimination of the old cold-blooded wild mare, which is very noticeable in the many horses now offered for sale in the Northwest.

Fort Keogh Remount Depot, Mont.—About 35 miles of new steel post reservation fence was built during the spring of 1917. This fence incloses that portion of the reservation previously unfenced and made available over 25,000 acres of new pasturage, making a total of about 45,000 acres of pasture land. The entire reservation is now fenced.

With the regular appropriations, buildings were kalsomined and roads repaired and built. The ice house and storage buildings were repainted. A dam was constructed on the north side of the reserva-

tion, diverting a large body of water into Sadie Bottom, creating excellent new pasture.

A wind break 2,300 feet long was built of material on hand and depot labor and affords excellent shelter for horses against the north winds of the severe winters. Four miles of new road were completed. The veterinary stable was renovated, new stalls built and screened and made fly proof.

A new 15-30 pull tractor was purchased which increases the depot's facilities in connection with two 30-60 tractors already on hand in plowing land during late summer and fall.

A well-digging outfit capable of boring to a depth of 1,000 feet was purchased and with its help it is hoped to locate four artesian wells in the new and old pastures. This is a very desirable improvement as it will furnish a never failing source of water supply.

Two new binders, four new hayrakes, two new seeders, two tractor disks and two tractor harrows were purchased and added to the supply of farm machinery.

A truck garden was established and with the aid of root cellars sufficient hardy vegetables can be stored to meet the demands of the mess until next season.

Forage grown during fiscal year 1917:

460,000 pounds of oats.....	\$10,000
500 tons alfalfa hay.....	10,000
75 tons timothy hay.....	1,650
400,000 pounds straw.....	2,000
Total.....	23,650

The showing of forage raised as compared to the fiscal year 1916 was caused by lack of rain. The total area cultivated for the harvest of 1917-18 approaches 1,900 acres and the spring prospects for a bountiful crop were spoiled by the longest drought and hottest spell that this section of the country has ever experienced.

Front Royal Remount Depot.—During the fiscal year the following progress was made in improving the depot (new construction): Three colt sheds, water filter, oil tank, paddock fences (under contract but not yet completed), and road construction (3,850 feet).

In addition to the foregoing, such repairs to existing structures as have been found necessary have been made from time to time during the past fiscal year to the extent of available funds.

Forage raised during the fiscal year:

20 tons alfalfa hay.....	\$400
15 tons other hay (including clover, orchard, and blue grass).....	225
40 tons oats.....	800
295 barrels corn.....	1,475
3,000 bundles corn fodder.....	180
Total.....	3,080

By comparison with the value of forage raised last year (\$2,324.22) this year's crop shows an increase of \$755.78, due partially to an extension of the area used for raising forage (about 200 acres) and partially to a better season. As stated in previous annual reports, however, the growing of forage crops is merely incidental to the main object—the planting of barren tracts with permanent grass pasture. All

pastures are being cleared of undergrowth to the extent possible under the allotment of funds made for this purpose.

Fort Reno Remount Depot.—The improvements which have been made in the depot during the past fiscal year are principally in the line of improvements in pasture arrangement and method of winter feeding. Shipping pens have been rebuilt so that two cars can be loaded at the same time and the period for loading averages about a minute and a half.

The road leading to El Reno has been rebuilt and is now in good condition. All roads leading to the various parts of the depot have been improved. Repairs have been made on certain buildings and some old rock houses have been renovated and turned into double sets of quarters for enlisted men.

The present season has been exceedingly unfavorable for farm crops. The rainfall since October last has been very much below normal and crops in this vicinity are practically a total failure.

Forage raised during the fiscal year:

1,000 tons alfalfa hay.....	\$18,000.00
150 tons prairie hay.....	1,500.00
40 tons Sudan hay.....	400.00
62 tons baled oat hay.....	930.00
1,000 bushels oats.....	700.00
250 bushels seed alfalfa.....	2,500.00
95 bushels seed Feterita.....	142.50
1,200 pounds Sudan seed.....	480.00
600 tons Feterita.....	10,800.00
Total.....	35,452.50

Issues to the militia.—Horse-drawn ambulances, escort wagons, and harness to the value of \$58,410.48 were issued by the transportation division, remount branch, to the Organized Militia during the fiscal year under authority of statutes providing for such issues, as follows:

	Num- ber.	Average cost.	Total cost.
Ambulances, horse-drawn.....	21	\$263.00	\$5,523.00
Harness, lead, s. s.....	352	25.35	8,923.20
Harness, wheel, s. s.....	336	25.30	8,500.80
Wagons, escort.....	199	176.52	35,127.48
Total.....			58,410.48

MANUAL OF PACK TRANSPORTATION.

In view of the fact that the stock of Manuals of Pack Transportation had become exhausted, a new edition, embodying certain changes which were made necessary on account of new regulations concerning equipment, was printed.

The report of operations of the Philippine Department is not contained in this report because it was not received in time.

Very respectfully,

HENRY G. SHARPE,
Quartermaster General.

EXHIBIT No. 1.

Treasury balance books, financial statement, Quartermaster Corps, fiscal year ended June 30, 1917.

For appropriations designated as annual there was provided for the service of the Quartermaster Corps for the fiscal year ending June 30, 1917, and by allotments.....	\$219,366,034.65	
During the said fiscal year there was deposited to the credit of said appropriations by Treasury settlements, sales, collections, balances, etc.....	63,484,839.12	
By department and Treasury transfers and miscellaneous items the sum of.....	25,170,201.59	
Total.....		\$308,021,075.36
Of this there was remitted to disbursing officers upon requisition the sum of.....	296,719,787.24	
Expended on account of settlements made at the Treasury.....	580,410.20	
By department and Treasury transfers and miscellaneous items.....	1,053,792.51	
Total.....		298,353,989.95
Leaving a balance on hand July 1, 1917, available for payment of outstanding obligations the sum of.....		9,667,085.41
On July 1, 1916, there was on hand from annual appropriations for the service of the Quartermaster Corps pertaining to said fiscal year the sum of.....	1,913,037.01	
On hand from appropriations of other fiscal years, including special and indefinite appropriations, the sum of.....	1,830,317.81	
There was added during the fiscal year ending June 30, 1917, by appropriations and allotments.....	1,237,207,684.65	
During the fiscal year there was deposited to the credit of these appropriations by balances, sales, collections, etc., and settlements made at the Treasury, the sum of.....	20,408,101.54	
By department and Treasury transfers and miscellaneous items.....	200,419.97	
Total.....		1,261,550,560.98
Of this there was remitted to disbursing officers on requisition the sum of.....	125,249,398.17	
There was paid on settlements made at the Treasury the sum of.....	84,935,781.93	
On account of department and Treasury transfers and miscellaneous items.....	2,325,993.45	
Carried to surplus fund the sum of.....	1,286,525.99	
Total.....		213,797,699.54
Leaving a balance on hand July 1, 1917, available for payment of outstanding obligations pertaining to the fiscal years 1916, 1915, etc., and special or indefinite appropriations the sum of.....		1,047,761,861.44
		1,261,550,560.98

RECAPITULATION.

Balance on hand, all appropriations, July 1, 1916, fiscal year 1916.....	\$1,913,037.01	
Appropriated by Congress for fiscal year ending June 30, 1917.....	1,458,404,037.11	
Credited to all appropriations by deposits, transfers, Treasury settlements, allotments, etc.....	109,263,562.22	
Total.....		1,569,599,636.34
Remitted to disbursing officers, all appropriations.....	421,969,185.41	
Charged on account of transfers and Treasury settlements.....	88,895,978.09	
Carried to surplus fund.....	1,286,525.99	
Total.....		512,151,689.49
Balance on hand July 1, 1917, for all appropriations of the Quartermaster Corps.....		1,057,428,946.85
Grand total for fiscal year ending June 30, 1917, of all appropriations of the Quartermaster Corps.....		1,569,599,636.34

EXHIBIT 3.

REVOCABLE LICENSES, LEASES, ETC.

Revocable licenses, permits, and leases granted by the War Department during the fiscal year 1917 (so far as shown by the records of this office) were made as follows:

Fort Andrews, Mass.—Licenses, dated February 21, 1917, to occupy and maintain dwelling and to connect the same with the electric lighting system of the post, to the following enlisted men: Sergt. Samuel Perry, First Company, Coast Artillery Corps; Sergt. Alexander Littlejohns, Quartermaster Corps; Sergt. Harry Downes, Third Company, Coast Artillery Corps; Corpl. Geo. A. Roberts, Second Company, Coast Artillery Corps; Pvt. A. Bies, First Company, Coast Artillery Corps; Sergt. John L. Austin, Quartermaster Corps.

Aqueduct Bridge.—Permission, March 29, 1917, to the Washington district engineer officer in charge of the construction of the new Key Bridge to make any arrangements for the temporary occupation as he may deem necessary in connection with its construction.

Fort Armistead, Md.—Permission, July 6, 1917, to Department of Commerce, to increase the width of the cut through the trees on the Fort Armistead Military Reservation to afford a better view of the Brewerton Channel Rear Range Light.

Fort Barrancas, Fla.—Revocable license, dated January 17, 1917, to the Uniform Rank, Woodmen of the World, to hold its national encampment the month of July, 1917, upon the reservation, to accommodate about 2,000 men.

Lease renewal, dated February 5, 1917, to James H. Jones; consideration \$1, payable in advance, of that part of the United States military reservation described as lot 1, section 1, containing 34.5 acres; and lot 2, section 3, containing 65 acres, both of said lots being in township 3 south, range 31 west.

Fort Bliss, Tex.—License, July 7, 1916, to the El Paso & Northeastern Railroad Co., to erect a loading platform and pens on its right of way upon the reservation, on conditions.

License, August 18, 1916, to Mr. W. F. Moulton, of El Paso, Tex., to erect a temporary laundry building near the buildings known as coal shed No. 51 and forage storehouse No. 85, etc.

Revocable license, June 17, 1917, to El Paso Gas Co., El Paso, Tex., to extend a gas main to the laundry erected by W. F. Moulton under license of August 18, 1916, on the Fort Bliss military reservation, Tex.

Fort Brown, Tex.—Lease, dated August 2, 1916, for the term of one year, from February 1, 1916, \$1 rental, payable in advance, "That part of the United States military reservation, at Fort Barrancas, Fla., known and described as follows: Lot 1, section 1, containing 34.5 acres; and lot 2, section 3, containing 65 acres, both of said lots being in township 3 south, range 31 west, with conditions.

Camp Bumpus, P. I.—Lease, dated August 23, 1916, to Salvadore Alvarez, Tacloban, Province of Leyte, P. I., for five years from July 1, 1916, for commercial, agricultural, and grazing purposes, for 100 pesos per annum, payable quarterly in advance, with conditions.

Fort D. A. Russell, Wyo.—Lease, July 31, 1916, to Hersig Bros., of certain grazing and hay land, June 20, 1916, to October 31, 1916, \$105. Leased to Fred G. Hersig, April 1, 1917, to November 1, 1917, \$162.

Eagle Pass, Tex.—Permission, August 10, 1916, to the United States Health Service (Treasury Department) to occupy and use a tract of land on reservation, approximately 75 feet square.

Permission, January 15, 1917, to the United States Health Service (Treasury Department) to occupy and use a tract of land on reservation and maintain building thereon for the fumigation of Mexican refugees. (This is the same land as preceding item hereon.)

Fort Hancock, N. J.—Permission, January 29, 1917, to the Secretary of Commerce, for the Lighthouse Service to establish a new fog bell and acetylene light upon a location as near the tip of the point of Sandy Hook as is practicable.

Fort Howard, Md.—Revocable license, January 9, 1917, to the Baltimore Chamber of Commerce, to erect and maintain an observation station adjoining the waiting room thereon, upon conditions.

Fort Huachuca, Ariz.—License, July 20, 1916, to the Mountain States Telephone Co., for telephone line.

Fort Kamehameha, Hawaii.—Revocable license, August 23, 1916, to Sergt. John H. Daniels, to erect a temporary frame building, with conditions.

License, October —, 1916, to Pvt. Roy L. Davis, Second Company, Coast Artillery Corps, to erect a small temporary building near the post laundry on the reservation to be used for the purposes of a photographic dark room.

Revocable license, December 13, 1916, to the commanding officer, Fifth Company, Coast Artillery Corps, to continue to occupy and maintain the building occupied by the said company in the rear of barracks building 41, with conditions.

License, dated May 16, 1917, to Fourth Company, Coast Artillery Corps, to construct a mechanic's workshop, with conditions.

Camp Keithley, P. I.—Revocable license, March 14, 1917, granting permission to the government of the Philippine Islands to use and occupy as a highway those portions of the Overton-Keithley military road lying within the military reservation of Camp Keithley, Camp Overton, and Momungan, P. I.

Fort Keogh Remount Depot, Mont.—Revocable lease, August 29, 1916, to Chicago, Milwaukee & St. Paul Railway Co., of 241.67 acres of land for purpose of removing earth, gravel, and ballast. Terms, 10 years. Consideration, \$50 per annum and not to exceed 100 carloads sand and gravel to be delivered at Fort Keogh spur track.

Fort Leavenworth, Kans.—License, December 28, 1916, to the Captain Jesse Leavenworth Chapter, D. A. R., to place a historical bronze tablet in the old stone wall of the original Fort Leavenworth.

Madison Barracks, N. Y.—License, September 2, 1916, to Mr. J. Ralph Bush, post electrician, to use water in his house in Sacket Harbor from the water supply system of the post of Madison Barracks, and for that purpose to make connection with the Government water main, upon conditions.

Fort Mansfield, R. I.—Permission, November 8, 1916, by Adjutant General's Office to Mr. Ashbel Green to use a small tract of land at Napatree Point, Watch Hill, R. I., for a private bathing beach, under such rules and restrictions as the commanding officer may prescribe, but that it is not desirable to issue a revocable lease for this purpose.

Fort St. Michael, Alaska.—License, October 24, 1916, to Ivan Kosevnikoff to occupy and to erect and maintain thereon a building for residential purposes and carpenter shop, approximately 150 by 200 feet, with conditions.

Revocation of license, October 24, 1916, to Chas. T. Lyons to erect a building for residence on parcel of land (no use being made of the tract by him).

Fort Myer, Va.—Permission, January 25, 1917, to the Navy Department to connect 4-inch pipe line from the radio station to the 4-inch main at Fort Myer, with the understanding that it will take approximately 2,000 gallons per day only, with conditions.

Permission by the Secretary of War, March 24, 1917, to close the roadway running along the westerly side of the radio reservation.

Fort Omaha, Nebr.—License, January 13, 1917, to the Nebraska Telephone Co., Omaha, Nebr., to install an underground telephone conduit, and to place wires therein from the east property line of the United States military reservation to the southeast corner of the post guardhouse, on conditions.

Camp Overton, P. I.—Revocable license, March 14, 1917, granting permission to the Government of the Philippine Islands to use and occupy as a highway those portions of the Overton-Keithley military road lying within the military reservation of Camp Keithley, Camp Overton, and Momungan, P. I.

Polloc Military Reservation, P. I.—License, dated September 5, 1916, to the government of the Philippine Islands for the use of the military reservation of Polloc, Province of Mindanao and the dry dock and buildings located thereat, for the purpose of repairing means of water transportation.

Fort Pickens, Fla.—Revocation, April 10, 1917, of lease to Benjamin P. Edmundson for the above purpose.

Pittsburgh Storage and Supply Depot, Pa.—Permission, March 21, 1917, to Mr. Wm. W. McAdams, attorney at law, 233 Bakewell Building, Pittsburgh, Pa., on behalf of the Keystone Bronze Co., for the Keystone Bronze Co., to cross the siding of the Pittsburgh Storage and Supply Depot with their siding.

Presidio of San Francisco.—License, March 21, 1917, modifying revocable license to the Pacific Gas & Electric Co., so as to include an extension of existing mains to the new officers' quarters.

License, April 7, 1917, to the Pacific Telephone & Telegraph Co., San Francisco, to construct, operate, and maintain telephone lines upon the reservation.

License, May 4, 1917, to Pacific Gas & Electric Co., to extend its gas main now on the Presidio of San Francisco under licenses of April 19, 1916, and March 21, 1917, to the Young Men's Christian Association and to make necessary connections, etc.

License, May 13, 1917, to the regents of the University of California to take surplus water not needed for military purposes and not to exceed 30,000 cubic feet per month from Lobos Creek through the service pipes from which the water has heretofore been supplied to the Palace of Fine Arts, for the maintenance of the grounds and toilets, etc.

Fort Sam Houston, Tex.—Ordinance by the city of San Antonio, dated February 12, 1917, granting permission to the United States Army, Quartermaster's Department, to construct sanitary sewer in Appler Street.

San Diego, Cal.—License, March 6, 1917, to O. S. T. Meyerhoffer (formerly Janus Bros.), to occupy and use "Wharf lot" until December 31, 1917, for the purpose of harboring and launching flying boats.

Fort Schuyler, N. Y.—Permission, November 17, 1916, by the Secretary of War, to the American Red Cross for the use of reservation and buildings Nos. 10, 25, 40, and 47 for storage purposes.

Schofield Barracks, Hawaii.—License, July 22, 1916, to the post exchange, Fourth Cavalry, to occupy a plat of ground 200 yards square for the purpose of raising chickens and vegetables, and to erect a small building thereon, with conditions.

License, August 23, 1916, to Pvt. Frank L. Dawson, Company F, Twenty-fifth Infantry, to construct an addition to the garage of said company and to use the same as a hat-cleaning and repair shop.

License, February 9, 1917, to Bishop & Co., Honolulu, to construct a temporary addition to its banking building erected on the United States military reservation under revocable license of June 24, 1914, and to erect also on said reservation two residences, one servants' quarters, one garage, and one storehouse, all to be of temporary construction, with conditions.

License, dated April 28, 1917, to Chaplain George W. Prioleau, Twenty-fifth Infantry, to erect a two-story temporary frame building, upon the reservation, on condition.

Fort Shafter, Hawaii.—Revocable license, March 20, 1917, to F. Oshikawa, to maintain upon the military reservation for post exchange restaurant purposes, three temporary buildings (shown on map) and one lean-to addition to permanent building No. 23, also shown on map.

Revocable license, March 20, 1917, to Chock Look, to maintain upon the military reservation for the purpose of conducting therein a tailor shop in conjunction with the post exchange, a temporary building located at a certain point shown on map.

Fort Sill, Okla.—License to the Lawton, Wichita Mountain & Western Electric Railway, of February 18, 1914, and to the Wichita Mountain & Orient Railway Co., granted by act of Congress, are declared void by decision of Judge Advocate General, July 15, 1916 (A. G. O. 2423069).

Fort Terry, N. Y.—Revocable licenses, November 11, 1916, to occupy cottages on the reservation to the following: Sergt. James E. Leslie, Sergt. William H. Ewing, George North, First Sergt. M. Wilburn, Sergt. J. Barrett, Cook J. Purcell, Sergt. C. S. Stedly, with conditions.

Fort Thomas, Ky.—Lease, dated March 29, 1917, as a renewal to the same party and under the same conditions as preceding (John Schmidt).

Tobyhanna, Pa.—License, dated July 6, 1916, to Thomas Brady, of Bayonne, N. J.; same as above, except that the name of Henry Pratt is left out of the license, and revokes the license granted Thomas Brady on August 10, 1915.

License dated August 22, 1916, granted instead of preceding one granted July 6, 1916, to Thomas Brady and is in substance same as license granted August 10, 1916, except that the words "the rights, etc., to the said Henry Pratt tract being as defined in the deed, bearing date December 2, 1914, by which the said Thomas Brady and wife granted and conveyed the said Pratt tract to the United States."

Permission, March 11, 1917, to George E. Wagner, for extension of time to remove timber from the tract of land under warranty name of Henry Pratt, to April 1, 1918.

Vancouver Barracks, Wash.—Permission, January 10, 1917, to Engineer Department to install telephone line on the electric light poles for the purpose of providing telephone connection for the engineer depot at that post.

Fort Walla Walla, Wash.—Revocation of license, dated December 13, 1916, to the Commercial Club of Walla Walla, withdrawing the license issued to them on August 9, 1915, to occupy for hospital purposes the porch of Barracks No. 60 and the rear part, etc.

Permission, July 3, 1917, to the Militia Bureau for the use of certain buildings at Fort Walla Walla for use of the National Guard of the State of Washington.

Walter Reed Army General Hospital, D. C.—Permit, February 10, 1917, to the Commissioners of the District of Columbia to widen Georgia Avenue between Rock Creek Church Road and the District line.

West Point, N. Y.—License, November 9, 1916, to the Buttermilk Falls Electric Co., Highland Falls, N. Y., to construct electric transmission line along the State highway through the reservation, with conditions.

Whipple Barracks, Ariz.—Revocable license, November 14, 1916, to the Bank of Arizona, of Prescott, Ariz., to remove from the reservation certain equipment of the Prescott & Mount Union Railway Co., under conditions.

Fort Winfield Scott, Cal.—License, April 10, 1917, to the American Red Cross to construct a small building and to occupy for life-saving purposes certain portions of Bakers' Beach.

Fort Wood, N. Y.—Permit, dated December 1, 1916, to the department commander, Eastern Department, to install a dolphin in upper New York Bay about 575 feet southwest from the southern edge of the west dock at Fort Wood, Bedloe Island.

Lease, March 19, 1917, by the Lehigh Valley Railroad Co. to the United States, of erecting and maintaining a signboard situated near Black Tom, Jersey City; consideration, \$5 per annum. The leases covering period April 1, 1917, to June 30, 1917, and fiscal year 1918.

LOSSES BY FIRE AND STORM.

The losses by fire and storm during the fiscal year 1917 were as follows (cost given where reported):

On July 5, and October 18, 1916, the Gulf forts were visited by a very severe hurricane, which did much damage to the buildings and systems at posts (Forts Barrancas, Pickens, and McRee, Morgan, and Gaines). Estimated damage, \$139,962.60.

Fort Moultrie, S. C.—July 13, 1916, post hospital building damaged to the extent of \$154 and hospital steward's quarters damaged to the extent of \$27.

Fort Snelling, Minn.—Building No. 49 F, quartermaster stables, destroyed by fire July 9, 1916.

Fort Bliss, Tex.—July 12, 1916, damage by fire in the kitchen of Troop I, Eighth Cavalry, \$100.

Fort Wood, N. Y.—July 30, 1916, damage by explosion on Black Tom Wharf, extent of \$38,555.94.

Fort Rodman, Mass.—July 15, 1916, chimney and roof damaged by lightning to the extent of \$53.36.

New York Depot.—July 30, 1916, to replace window glass shattered by explosion at Army building, Pier No. 12, and at Governors Island warehouse to the extent of \$122.70.

Fort Moultrie, S. C.—July 15, 1916, damage caused by hurricane to buildings, etc.; total damage, \$5,202.

Vancouver, Wash.—August 16, 1916, hospital No. 83 damaged by fire.

Fort Clark, Tex.—August 19, 1916, many buildings, post, and State troop camp seriously damaged by wind and rain.

Fort Sam Houston, Tex.—July 18, 1916, tents damaged by wind and rain storm to the extent of \$5,000 to \$10,000.

San Juan, P. R.—August 22, 1916, buildings Nos. 23, 28, 62, partially unroofed 7, 9, 15, 20, 54, 59, 64, 74, 120, 121, 122, and corral damaged by hurricane to the extent of \$2,500.

Henry Barracks, P. R.—August 22, 1916, buildings Nos. 1P, 3P, 6P, 7T, 11T, 12T, 15T, 14T, 15T, 16T, 17T, 18T, 21T, 28T, 29T damaged by storm to the extent of \$2,500.

Marathon, Tex.—September 12, 1916, camp of the Thirty-third Truck Company was damaged by fire to the extent of—ordnance property, \$4.31; quartermaster stores, \$476.81; commissary stores, \$96.07.

Schofield Barracks, Hawaii.—July 22, 1916, articles in the kitchen of Company G, Twenty-fifth Infantry, to the extent of \$163.85 damaged by fire.

Wm. H. Seward.—Alaska, October 4, 1916, building 29, boathouses, partly destroyed by spontaneous combustion.

Governors Island, N. Y.—July 30, 1916, damage done by an explosion on Black Tom Island to the extent of \$1,841.63.

Jackson Barracks, La.—October 19, 1916, expenditure for repairs in boiler room in building No. 37, \$500.

Fort Hancock, N. J.—October 20, 1916, crematory at building No. 69 seriously damaged by fire.

Fort Sam Houston, Tex.—October 20, 1916, leather harness canvas and waste in main warehouse damaged by fire.

Seattle, Wash.—June 30, 1916, Pier No. 11 damaged by fire to the extent of \$73,214.76.

Fort Huachuca, Ariz.—October 5, 1916, building damaged by fire to the extent estimated at \$250.

Fort Worden, Wash.—November 15, 1916, officers quarters 25, this post, damaged by fire to the extent of \$400.

Key West Barracks, Fla.—November 15, 1916, smokestack on pumping and distilling plant, damaged by storm.

Camp Stotsenburg, P. I.—September 8, 1916, stables of Troop A Ninth Cavalry damaged by lightning to the extent of \$199.60.

Fort Carwell, N. C.—November 22, 1916, building No. 1, officers quarters damaged to the extent of \$170.

Fort Meade, S. Dak.—December 4, 1916, building entirely destroyed by fire.

Fort Snelling, Minn.—November 13, 1916, building damaged by fire to the extent of \$361.60.

Fort Rosecrans, Cal.—December 9, 1916, barracks first company building No. 15, seriously damaged by fire.

Fort Logan, Colo.—December 11, 1916, building damaged by fire caused by defective flue.

Fort Clark, Tex.—December 16, 1916, storeroom of building 58 totally destroyed, and storerooms buildings 57 and 59 damaged by fire to the extent estimated \$200.

West Point, N. Y.—December 23, 1916, No. 2 stables quartermaster building No. 53 burned, all animals and harness saved.

Fort Douglas, Utah.—December 24, 1916, roof on building No. 86, shooting gallery, broken down by heavy snow. Porch roofs of old hospital, buildings Nos. 3 and 4, also broken in.

Fort Sam Houston, Tex.—December 26, 1916, wireless stations at Dublin and El Valle blown down, camp partially destroyed, commissary storehouse and many other adobe structures badly damaged.

Boise, Idaho.—December 26, 1916, kitchen wing building No. 12 damaged by fire, due to defective flue.

Fort Williams, Me.—Water pipes and plumbing fixtures of the post gymnasium building No. 43 damaged by frost to the extent of \$7.76.

Fort Bliss, Tex.—December 2, 1916, destruction by fire of mess shelter of Battery E, Eighth Field Artillery, including battery property lost, also rations and personal property, to the extent of \$1,072.33.

Fort Mills, P. I.—November 13, 1916, building No. 401 (Nipa Line) Infantry garrison destroyed by fire to the extent of \$690.61.

Fort Snelling, Minn.—January 5, 1917, post hospital damaged by fire to the extent of approximately \$5.

Fort Grant, Canal Zone.—January 12, 1917, mine dock damaged by fire to the extent of \$50.

Army and Navy General Hospital, Hot Springs, Ark.—January 22, 1917, Hospital damaged by fire.

Fort Sill, Okla.—April 4, 1917, band stand damaged by a windstorm to the extent of \$525.

Fort Armistead, Md.—April 24, 1917, waiting room damaged by fire.

Fort Brady, Mich.—May 12, 1917, roof building damaged by fire.

Fort Adams, R. I.—March 20, 1917, carpenter and paint shop damaged to the extent of \$605.45 by fire.

Fort Myer, Va.—May 17, 1917, quarters occupied by Col. Peyton C. March, Eighth Field Artillery, damaged by fire to the extent of \$250.

Fort Clark, Tex.—April 27, 1917, public buildings damaged by storm to the extent of \$2,149.50.

Fort Slocum, N. Y.—May 25, 1917, fire occurred guardroom Slocum Dock, damage less than \$100.

Fort Bayard, N. Mex.—June 1, 1917, building No. 99-B damaged by fire to the extent of \$54.50.

Fort Sheridan, Ill.—June 9, 1917, crematory building No. 41 burned down.

Front Royal, Va.—June 20, 1917, chimney and roof of barrack building No. 30 damaged by lightning and fire.

Port of embarkation, Hoboken, N. J.—June 26, 1917, repairs to Pier No. 5 to the extent of \$105.

Fort D. A. Russell, Wyo.—June 28, 1917, buildings and electric plant damaged by hail storm to the extent of \$2,290.

Camp Stotsenburg, P. I.—December 14, 1916, public building No. 551, destroyed by fire, to the extent of \$50, supplies \$340. Cost to reconstruct \$150.

Fort Canby, Wash.—January 27, 1917, building No. 4, damaged by fire.

Fort Missoula, Mont.—January 25, 1917, building under water tank destroyed by fire.

Fort Michie, N. Y.—January 28, 1917, damage to infirmary estimated at \$270.

Fort McDowell, Cal.—February 15, 1917, fire in quarters, No. 6, estimated cost of repairs \$1,750.

Boston Depot, Mass.—February 21, 1917, Jaynes Building damaged by fire with small loss.

Fort Mason, Cal.—February 24, 1917, south porch and roof of building No. 35 used as a storehouse, damaged by high wind.

Fort Sam Houston, Tex.—March 7, 1917, building damaged by settling of walls.

Fort Preble, R. I.—March 22, 1917, barracks of the First Company damaged by fire to the extent of \$35.

Fort Oglethorpe, Ga.—March 28, 1917, old dwelling on the target range destroyed. It was of no value.

Camp Stotsenburg, P. I.—Public building No. 359, destroyed by fire January 11, 1917. Estimated cost of new building \$1,500.

Fort Sill, Okla.—April 4, 1917, band stand No. 92 damaged by wind.

Rockaway Beach, N. Y.—April 16, 1917, stable destroyed by fire; estimated cost of reconstruction \$1,000.

Fort Slocum, N. Y.—April 23, 1917, quarters No. 1, damaged by fire.

Fort Clark, Tex.—April 27, 1917, public buildings demolished by storm.

EXHIBIT 4.

Principal movements of troops for strictly military purposes, changes of station, etc., with cost of each movement.

[No movement less than one troop, battery, or company reported.]

Engineers:	
Company E, First Regiment Engineers, Washington, D. C., to Fort Leavenworth, Kans....	\$356.80
Detachments E and F, Second Engineers, San Francisco to Vancouver Barracks, Wash....	237.98
Detachments joining Eighth Reserve Engineers, San Francisco to American Lake, Wash., June 1 and 9.....	999.46
Company D, First Regiment Engineers, Plattsburg Barracks, Washington, D. C.....	1,253.12
Third P.T.R. Company Engineers, Sacketts Harbor, N. Y., Washington, D. C.....	1,767.78

EXHIBIT 5.

Statement showing special movements of troops in connection with labor strikes, parades, dedications, celebrations, etc., with cost of each movement.

Coast Artillery Corps:	
Eight companies from Fort Hamilton, N. Y., to New York City, participating in recruiting parade.....	\$130.00
Third Company, Fort Hamilton, N. Y., to Washington, D. C., inaugural parade.....	1,154.00
Fourth Company, Fort Hamilton, N. Y., to New York City, street parade.....	15.00
Second, Fourth, and Fifth Companies, New York City to Albany, N. Y., dedicating monument to Gen. Sheridan.....	2,623.50
Four companies, Fort Monroe, Va., to Washington, D. C., inaugural parade.....	3,563.88
Infantry:	
First Missouri, guard duty during visit of French commission to St. Louis.....	300.00
Fourteenth, Fort Liscum, Alaska, en route to Kennecott copper mines on account of strike.....	15.00
Cavalry: Second and Third Squadrons, Second Cavalry, Fort Ethan Allen, Vt., to Burlington, Vt., Memorial Day parade.....	No cost.
Miscellaneous:	
Cadets, West Point to Washington, D. C., and return, inaugural parade.....	12,016.76
Depot band, provisional band, and one provisional company, Fort Slocum, N. Y., to New Rochelle, N. Y., Memorial Day parade.....	No cost.
Detachment 2 officers, 77 men, Fort Washington, Md., to Washington, D. C., inaugural parade.....	29.65
Detachment 81 men, Fort Howard, Md., to Washington, D. C., inaugural parade.....	121.50
Detachment 4 officers, 144 men, Delaware City, Del., to Washington, D. C., inaugural parade.....	1,500.00
Detachment 244 men from New York Harbor posts, to Washington, D. C., inaugural parade.....	2,673.00
First Cavalry: Troop F, Camp Lawrence J. Hearn, Cal., to Calexico, Cal.....	No cost.
Second Cavalry: Troops K, L, M, and M. G. P., Plattsburg Barracks, N. Y., to Burlington, Vt.....	212.00
Field Artillery: Detachment, Delaware City, Del., Sparta, Wis.....	3,600.00
Coast Artillery:	
Detachment, Portland, Me., to Syracuse, N. Y.....	6,751.56
Detachment Coast Defense, Narragansett Bay to Syracuse, N. Y.....	918.87
Fourth Company, San Francisco to San Pedro, Cal.....	854.04
Tenth Company, San Francisco to Salt Lake City.....	256.50
Sixth Band and First Company, Seattle to Fort Worden, Wash.....	133.75
Sixth Band and First Company, Seattle to Cosgrove, Wash.....	218.42
Second Company, Fort Washington, Md., to Fort Monroe, Va.....	411.25
Twenty-fourth, Forty-ninth, and Eighty-ninth Companies, Plattsburg Barracks, N. Y., to Portland, Me.....	2,161.96
Second, Eighty-third, and One hundred and fifty-third Companies, Plattsburg Barracks, N. Y., to Boston, Mass.....	1,896.58
Third and One hundred and tenth Companies, Plattsburg Barracks, N. Y., to Newport, R. I.....	1,477.42
Fourth Company, Plattsburg Barracks, N. Y., to New London, Conn.....	736.92
Seventh and Eighth Companies, Plattsburg Barracks, N. Y., to Fort Monroe, Va.....	2,694.40
Third P. T. R. Company, Sacketts Harbor, N. Y., to Fort Monroe, Va.....	863.35
Fourth Company, Fort Hamilton, N. Y., to Rockaway Point, N. Y.....	1,200.00
First Company, Whitestone Landing, N. Y., to Rockaway Park, N. Y.....	100.00
Fourth Company, Fort Howard, Md., to Fort Monroe, Va.....	235.00
Three companies, Fort Monroe, Va., to Washington, D. C.....	1,395.60
Two companies, Fort Monroe, Va., to Cape Henry, Va.....	120.25
One company, Fort Monroe, Va., to Cape Henry, Va.....	No cost.
Two companies, Norfolk to Cape Henry, Va.....	72.80
One company, Cape Henry to Fort Monroe, Va.....	50.70
One company, Fort Monroe to Norfolk, Va.....	No cost.
One company, Fort Monroe, Va., to Sparta, Wis.....	227.50
Sixth Band, Fort Worden, Wash., to Presidio of Monterey, Cal.....	263.71
Fourth Company, Fort Worden to Fort Douglas, Utah.....	2,361.01
First and Sixth Companies, Fort Worden to American Lake, Wash.....	378.40
Third Band, Fifth and Seventh Companies, Fort Winfield Scott, Cal., to Presidio, Monterey, Cal.....	2,500.00

Coast Artillery—Continued.

Fourth Company, Fort Winfield Scott to Fort McArthur, Cal.....	854.04
Tenth Company, Fort Winfield Scott to Fort Miley, Cal.....	No cost.
Third Band, Fifth and Seventh Companies, Presidio of Monterey, Cal., to Fort Douglas, Utah.....	5,992.15
Sixth Band, Presidio of Monterey to American Lake, Wash.....	263.12
First, Second, and Third Companies, Presidio of Monterey, Cal., to San Francisco, Cal.....	673.79
Sixth Band, American Lake to Fort Worden, Wash.....	8.10
First Company, American Lake to Fort Lawton, Wash.....	126.99
Sixth Company, from American Lake to Fort Worden, Wash.....	173.04
First Company, Fort Lawton to Fort Worden, Wash.....	138.67
Third Band, Fifth and Seventh Companies, Fort Douglas, Utah, to San Francisco, Cal.....	5,732.35
Fourth Company, Fort Douglas, Utah, to Seattle, Wash.....	2,182.85
Second, Eighth, and Tenth Companies, Calexico to San Francisco, Cal.....	3,226.85
Second and Fourth Companies, Tecate, Cal., to San Francisco, Cal., en route to Fort Scott.....	2,042.42
First Company, Fort Baker to Fort Barry, Cal.....	No cost.
Two companies, Jersey City to Sea Girt, N. J.....	300.96
Two companies, Delaware City, Del., to New York City.....	738.00
Fifth Infantry:	
Detachment, Empire, Canal Zone., to Chorrera, Panama.....	117.56
Detachment, Empire, Canal Zone, to Balboa, Canal Zone, and return.....	No cost.
Six companies, Empire to Fort Sherman, Canal Zone and return.....	No cost.
Tenth Infantry:	
Camp Otis to Cristobal, Canal Zone.....	1,595.20
New York City to Fort Benjamin Harrison, Ind.....	12,125.00
Third Battalion, Newport News, Va., to Fort Benjamin Harrison, Ind.....	6,337.59
Twenty-first Infantry:	
Company I, Calexico to San Diego, Cal.....	No cost.
Company M, Calexico to San Diego, Cal.....	No cost.
Company C, Tecate to Camp Talliaferro, Cal.....	No cost.
Companies E and H, San Diego to Calexico, Cal.....	No cost.
Company G, San Diego to Tecate, Cal.....	No cost.
Company D, Camp Lawrence H. Hearn to Camp Talliaferro, Cal.....	No cost.
Thirty-third Infantry:	
Six Companies, Camp Otis to Gatun, Canal Zone.....	292.61
One Company, Empire to Balboa, Canal Zone.....	15.30
Seven Companies, Empire to Gatun, Canal Zone.....	526.89
Porto Rican Regiment: San Juan, P. R., to Camp E. S. Otis, Canal Zone.....	No cost.
Medical Corps:	
Hospital unit No. 21, St. Louis, Mo., to New York City.....	4,202.15
Reserve Base Hospital, No. 18, Baltimore, Md., to New York City.....	678.78
Reserve Ambulance Corps, No. 5, Washington, D. C., to Allentown, Pa.....	356.80
Miscellaneous:	
Army War College detachment, Plattsburg Barracks, N. Y., to Rosslyn, Va.....	441.44
Pack train No. 5, Fort Yellowstone, Wyo., to Calexico, Cal.....	1,463.42
Motor Truck Company No. 31, New Orleans, La., to Cristobal, Canal Zone.....	2,621.70
Battalion Transport Workers, New Orleans, La., to New York City.....	3,173.05

EXHIBIT 6.

Statement showing amount expended for street car and ferry tickets, recruiting expense being shown separately.

At depots, posts, and stations.....	\$27,152.26
For recruiting only.....	40,972.47
Total expended.....	68,124.73

EXHIBIT 7.

Weight of baggage (including household goods and personal effects) and professional books transported at public expense for officers, noncommissioned officers, and civilian employees, with cost of shipment and cost of packing and crating; also weight of baggage shipped in excess of authorized allowance at the expense of the owner.

UNITED STATES (INCLUDING ALASKA, CANAL ZONE, AND HAWAII).

	Baggage shipped at public expense.	Professional books shipped at public expense.	Baggage in excess of allowance at expense of owner.
	Pounds.	Pounds.	Pounds.
Officers.....	15,298,678	1,365,726	979,733
Noncommissioned officers.....	1,586,902	16,051	122,081
Civilian employees.....	460,439	10,927	84,917
Total.....	17,346,019	1,392,704	1,186,731

Cost of shipment at public expense.....	\$232,036.49
Cost of packing and crating at public expense.....	92,607.36
Total cost.....	324,643.85

EXHIBIT 8.

Operations of the transportation division of the Quartermaster Corps in the Hawaiian Islands.

FREIGHT AND PASSENGERS TRANSPORTED.

	By rail-road.	By commercial vessel.	By wagon or stage.	By express.	Total.
Passengers:					
Officers.....	97	22			119
Enlisted men.....	4,300	135			4,435
Civilians.....					
Total.....	4,397	157			4,554
Horses.....	63	8			
Stores:					
Quartermaster..... tons	57,340	65	171		57,576
Ordnance..... do	1,321	105	32		1,458
Medical..... do	41	5			46
Engineer..... do	1		1	1	3
Signal..... do	68				68
Miscellaneous..... do	30	13	35		78
Total.....	58,801	188	239	1	59,229
Funds.....				\$182,854.37	\$182,854.37

SPECIAL MOVEMENTS OF TROOPS IN CONNECTION WITH PARADES, DEDICATIONS, LABOR STRIKES, ETC., WITH COST OF SUCH MOVEMENTS.

February 22, 1917.—Two provisional battalions of Coast Artillery troops comprising three companies from Fort Ruger and four companies from Fort Kamehameha participated in parade at Honolulu, Hawaii, in honor of the anniversary of the birth of George Washington.

February 21 to 26, 1917.—First, Twenty-fifth, and Thirty-second Infantry, Fourth Cavalry, and First Field Artillery, less the necessary guard and fatigue, from Schofield Barracks, participated in the Mid-Pacific Carnival at Honolulu.

No cost to Government in connection with the above movements.

STATEMENT SHOWING AMOUNT EXPENDED FOR STREET-CAR TICKETS, AMOUNT EXPENDED FOR RECRUITING TO BE SHOWN SEPARATELY.

Expended for street-car tickets during the fiscal year 1917..... \$2,060.00
None for recruiting purposes.

EXHIBIT 9.

Cost to the Quartermaster Corps of operation of military lines in Alaska, exclusive of the operation of the cable ship "Burnside."

Construction and repair of buildings.....	\$1,124.30
Rental of lodgings and quarters.....	1,117.16
Rental of offices.....	5,244.50
Subsistence.....	19,310.76
Water, heat, and light.....	1,157.64
Telephone rentals.....	300.00
Scavenger service.....	16.39
Newspapers and periodicals.....	34.10
Forage.....	3,962.14
Shoeing animals.....	27.75
Purchase of sleds.....	38.50
Stabling public animals.....	19.81
Repairs to means of transportation.....	127.04
Snowshoes and snowshoe webbing, purchase of.....	15.00
Harness.....	67.98
Miscellaneous.....	621.06
Total.....	33,184.13

EXHIBIT 10.

PLAN FOR PURCHASE OF PUBLIC ANIMALS IN THE OPEN MARKET.

1. The purchasing officer in each remount zone will be furnished by the Quartermaster General the average price he is authorized by the Secretary of War to pay for each class of animal. These average prices shall not be exceeded. They will be kept confidential and will be furnished only to the purchasing officer of each zone, who will be held responsible that they are not given out to any other person.

2. The purchasing officer in each remount zone will be advised as to the number of animals of each class he is to purchase in a specified time in his zone. He will send to such responsible dealers as he selects, requests to quote prices on a specified number of one or more classes of animals and therewith the agreement the dealer will be required to execute.

3. If these offers to furnish animals are satisfactory as to places of delivery and prices, the zone purchasing officer will notify the dealer of the acceptance of his offer by wire or letter and execute an agreement.

4. If the offer of the dealer is not satisfactory as to prices and places of delivery, the purchasing officer will so advise him and request him to make another offer or request other responsible dealers to make an offer to supply the animals required.

5. Requests to dealers to make offers to the Government to furnish animals will be distributed as fairly as possible among the responsible dealers in each zone, giving due weight to the established reputation of each for honesty and ability to supply the number of animals allotted to him without calling upon other agencies to assist him. Subletting will be prevented by giving each dealer notice that if practiced the Government will do no further business with him.

6. Through the agencies of the Department of Agriculture farmers and breeders will be encouraged to offer animals to the Government in carload lots or more. No offer of less than a carload lot will be received. If any of these offers are not satisfactory as to price the farmer or breeder making the offer will be advised and be asked to make another offer.

7. When farmers or breeders offer to furnish a number of animals less than 100 no bond will be required, but 5 per cent of the purchase price of each animal will be retained until the total number offered has been delivered. At least one inspecting board in each remount zone will be reserved for the inspection of animals offered by the farmers and breeders. An inspecting officer purchasing from farmers and breeders will use every effort to inform them as to the types of animals required in the military service, and as to the defects, blemishes, and faults of conformation that disqualify animals for such service.

8. Twenty per cent of the number of each class of animals allotted to the purchasing officer of each zone for purchase during a definite period will be reserved for supply by the farmers and breeders. If satisfactory offers to furnish the number of animals by the farmers and breeders have not been made when one-half of the period of time allotted for purchasing the required number of animals has passed, then the purchasing officer will give a new set of dealers an opportunity to supply the animals needed or call on the dealers who have contracts and are filling them satisfactorily to supply the number of animals required.

9. The purchasing officer in each zone will require of each dealer desiring to furnish animals to the Government in his zone information as to the dealer's financial standing, business reputation, record of performance in supplying animals to this and other Governments, the territory in which he proposes to buy animals for delivery to the Government, and evidence that he has the organization to get the number of animals required. This information will be made a part of the permanent records of each office, and a copy forwarded to the Quartermaster General of the Army.

10. It will be the policy of this office, in so far as the exigencies of the war permit, to give comparatively small buying orders to purchasing officers for purchase in a comparatively short time, and follow these small orders with new orders so that buying once started may continue fairly steadily, and the organization of the dealers giving satisfactory service may be kept at work.

11. The purchasing officer of each zone will report to the Quartermaster General by wire each day giving the number of each class of animals shipped and the organization of the Army and destination to which shipped during the preceding day in his zone.

12. No paid advertisement will be authorized in connection with this method of purchase in the open market.

13. The animals furnished by dealers to the Government in each zone need not be purchased by dealers from the animals on hand within the territorial limits of that zone.

14. The provisions of regulations issued by the Quartermaster General governing the purchase and inspection of animals for the Army not in conflict with these instructions will be observed.

Place
Date.....

From { Depot quartermaster
or
Purchasing officer.

..... Depot.
.....

To:
Subject: Purchasing of public animals.

Authority having been given by the Secretary of War for the purchase of public animals at a suitable price in the *open market* under provision of the Army appropriation act approved May 12, 1917, and June 18, 1917, you are requested to quote a price on

Number.	Price.
.....	Cavalry horses.....
.....	Light Artillery horses.....
.....	Heavy Artillery horses.....
.....	Wheel mules.....
.....	Lead mules.....
.....	Pack mules.....
to be delivered at.....	
.....	
.....	

during the period commencing, 1917, and ending, 1917, subject to all the terms and conditions of the agreement and specifications hereto attached. You will be notified if the price is satisfactory and a time set for executing the agreement.

(Signed)

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REPORT OF THE SURGEON GENERAL.

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REPORT OF THE SURGEON GENERAL.

I have the honor to transmit herewith the annual report of the Surgeon General of the Army for the calendar year 1916, including a financial statement for the fiscal year 1916-17. This is the one-hundredth consecutive annual report of the Surgeon General, the first having been compiled in the year 1818. The century covered by these reports, extending approximately from the War of 1812 to the War of 1917, has been a period of remarkable scientific and professional advancement and of military and material achievement for our country in which the Medical Department and the Army of the United States have played a highly creditable if not a conspicuous part

GEOGRAPHICAL DISTRIBUTION.

The wide geographical range and varied character of the activities of the medical officers of the Army during the past two decades have been a matter of frequent comment. The year 1916 proved no exception to the rule, and the Medical Corps found its field of action, not only in the various parts of continental United States, but also in Mexico, in Alaska, in Panama and Porto Rico, in Hawaii, in the Philippines, and in China. It may be stated in passing that recent events have further increased the regional distribution of our Army, and the Medical Corps now faces the sanitary and hygienic problems of a great modern war, staged with a European background, and under conditions unparalleled in the history of warfare.

The services rendered by the officers of the Medical Corps have been highly satisfactory in all respects, administrative as well as professional, and have entirely justified the commendation made by their superiors in official reports.

Special emphasis should be placed upon the excellent work accomplished by the medical officers of the Regular Army in connection with the expedition into Mexico, and particular attention should be directed to the exceptional results achieved in the Southern Department by the medical officers of both the Regular Army and the National Guard during the mobilization of the Army and the Guard on the border in the summer and fall of 1916.

The following senior medical officers of the Medical Corps, United States Army, have held positions of special importance during the year 1916:

Col. Henry P. Birmingham, Acting Surgeon General, United States Army, during the period of mobilization of the Regular Army and National Guard, June-December, 1916.

Col. William H. Arthur, commandant Army Medical School and Laboratories, Washington, D. C.

The department surgeons, commanding officers of general hospitals, officers in charge of Red Cross and special work and general supply depots, and the chief surgeons and sanitary inspectors of

expeditionary forces were: Colonels of the Medical Corps Charles Richard, Rudolph G. Ebert, William H. Arthur, George E. Bushnell, Henry P. Birmingham, William O. Owen, William Stephenson, Guy L. Edie, William D. Crosby, Charles M. Gandy, Walter D. McCaw, Jefferson R. Kean, Henry I. Raymond, William P. Kendall, William B. Banister, Charles F. Mason, James D. Glennan, Alfred E. Bradley, Euclid B. Frick, Frank R. Keefer, Charles Wilcox, Thomas U. Raymond, Henry D. Snyder, Allen M. Smith, Joseph T. Clark, Merritte W. Ireland, Henry C. Fisher, Henry A. Shaw, Francis A. Winter, George D. Deshon, Champe C. McCullough, jr., Frederick P. Reynolds, Paul F. Straub, Alexander N. Stark, Charles Lynch, Edward L. Munson, James M. Kennedy, Deane C. Howard, William H. Wilson, William F. Lewis, Thomas S. Bratton, Thomas J. Kirkpatrick, Irving W. Rand, Powell C. Fauntleroy, James S. Wilson, Basil H. Dutcher, Leigh A. Fuller, George A. Skinner, Carl R. Darnall, Henry Page, Bailey K. Ashford, Henry A. Webber, Jesse B. Clayton, Weston P. Chamberlain, Edward R. Schreiner, Frederick M. Hartsock, Douglas F. Duval, and Clarence J. Manly.

THE GREAT WAR.

On the 6th of April, 1917, the United States entered as an active participant the European war, the most formidable military contest of all time, ancient or modern.

It is manifestly undesirable at this time to allude except in most general terms to the preparations made for this struggle by the War Department, or refer except briefly to the plans of the Medical Department for its very important part in the war, with its exacting responsibilities in connection with all that relates to the health, hygiene, and sanitation of the enormously increased military forces of the United States, included in the Regular Army, National Guard, and National Army.

The details of the important work mentioned and the medical history of the part taken by the United States in the great war will be properly a subject for future annual and special reports, and the means to secure this end have already been given careful consideration with the view that nothing of professional or historical value and interest may be lost.

As evidence of the unprecedented expansion of the activities of the Medical Department of the Army, it can be stated that at this time there are more than 13,900 officers engaged in the work of the Army Medical Department, including officers of the Regular Medical Corps, and the four Officers' Reserve Corps—Medical, Dental, Veterinary, and Sanitary—connected with the work under the direction of the Surgeon General of the Army.

It is believed that at least 24,000 physicians will be included in the personnel of the Medical Department of the Army when full strength is attained.

Every step in caring for the physical welfare of the enlisted men, officers, and civilians associated directly with the military organizations of the United States from the time of their entry into active service until they are discharged comes under the direction of the Medical Department of the Army.

In this work is included the physical and mental examination and training of recruits, the supervision of the water supplies, the inspection of foods to be served, the disposition of wastes, sanitation of cantonments and camps, care of sick and wounded, including proper records of all cases, the operation of field, base, and convalescent hospitals, reeducation of the permanently crippled and the handling of the necessary medical supplies and equipment for all this work.

The total number of hospital beds will be placed on a basis of 25 per cent of the strength of the Army.

In preparing for the great task devolving upon the Medical Department, as outlined above, this office is having the earnest and whole-hearted support of the entire medical profession of the United States, which has responded promptly and placed at the disposition of the Surgeon General of the Army the services of the most distinguished specialists in all branches of medical endeavor.

These distinguished men of the medical profession enrolled as members of the Council of National Defense, and as commissioned officers of the Medical Reserve Corps, are rendering a service to the Army and to the country which can not be overestimated and which will ever be held in grateful remembrance.

GENERAL HEALTH OF THE ARMY.

The general health conditions of the United States Army for the calendar year 1916 were in all respects satisfactory and in view of the unusual circumstances connected with the mobilization on the border and the expedition into Mexico, may be fairly regarded as specially creditable to those directly associated with the management of all matters pertaining to the health and sanitation, particularly of the troops serving in the Southern Department.

The mean strength (corrected for time) of the entire Army, American and native troops, including the National Guard, was 176,803 for the year 1916. Its noneffective rate from all causes in the year was 24.26 per 1,000 and for disease alone, 20.55, both of which ratios were slightly lower than for the previous year, 25.22 and 20.85, respectively.

The admission rate for the Army, including the National Guard, for 1916, was 858.87, as compared with 726.22 for 1915; the discharge rate was 15.22, as compared with 14.06 for the previous year, and the death rate was 4.39, as against 4.45 per 1,000 of mean strength.

The mean strength of the entire Regular Army for the calendar year 1916 upon which the statistics contained in the annual report are based, was 110,454.

The noneffective rate for the entire Regular Army for 1916, from all causes, was 26.99 per 1,000 and for disease alone 22.63, being slightly higher than for the previous year, 25.22 and 20.85, respectively, but much lower than the average of these rates for the decade, 34.99 and 29.65, while that for the year 1906 was 47.86 per 1,000 from all causes.

The admission rate for the entire Army for 1916 was 726.45, as compared with 726.19 per 1,000 for 1915.

The death rate of the entire Army for 1916, from all causes, was 5.19 per 1,000, compared with 4.45 for 1915, which was slightly

higher than the lowest mortality rate in the Army for many years, 4.40 for 1914. The death rate from disease was 2.71 per 1,000 for 1916, as compared with 2.53 for 1915; the average for the decade was 2.94 and for the year 1906, 3.77.

The discharge rate for the year 1916, from all causes, was 15.98 per 1,000 as against 14.06 for 1915 and 12.78 for 1914; while the rate for this year is slightly higher than for the two years previous, it was less than the discharge rates prior to 1910 when they ranged from 16.64 upward.

The total losses of the Army from all causes—deaths, discharges, and retirements—was 20.92 per 1,000 for 1916 and 18.03 per 1,000 for 1915; for the year 1914 the rate was 16.86, the lowest in the past decade.

Malarial fevers show a noneffective rate of 0.62 for 1916, as compared with 0.54 for 1915, the lowest noneffective rate in the history of the Army. In 1906 the noneffective rate for malarial fevers alone was 2.55 per 1,000. The decade following has demonstrated the effectiveness of the antimalarial measures that have been unceasingly employed by the sanitary officers of the Army each year, exhibiting, with but two exceptions, a marked decrease in the incidence of the disease.

The entire force in the Philippines, including native troops, gave an admission rate of 715.87 for 1916 as compared with 853.65 for the previous year, and noneffective rates, respectively, 23.27 and 24.72. This record is especially creditable, as compared with former years, though here, as in the Canal Zone, the Medical Department has been at some disadvantage, through lack of screening or other antimosquito requisites, due to insufficient appropriation of funds for this important work. There should be no further delay in properly screening all buildings in the Tropics occupied as hospitals, barracks, or quarters.

The highest noneffective rate, for disease alone, for 1916 was among the troops stationed in China, 28.22 per 1,000. The rate is slightly lower than last year, when it was 31.78 per 1,000. Then follows in order: United States with 25.51; Canal Zone with 23.45; Porto Rico with 22.53; Philippine Islands with 19.86; Hawaii with 15.23; Mexico with 12.79; and Alaska had a rate of only 6.23, which is slightly higher than that for last year, 6.02.

Typhoid fever.—Typhoid fever has always held an important place in relation to the health and efficiency of armies. Its widespread occurrence in civil communities has caused in the past its prompt appearance among recently recruited levies of troops, especially those of youthful age from rural districts.

The history of typhoid fever in the United States Army is now a matter of common knowledge. The ravages of the disease in the volunteer organizations encamped in the South during the summer and autumn of 1898, the year of the Spanish-American War, is well remembered. Improved methods in camp sanitation, the special care given to food and water supplies, and the disposal of refuse and excreta all contributed to the marked reduction in the incidence of typhoid fever among the Regular troops during the decade following the War with Spain.

It was not, however, until the introduction of vaccination against typhoid, a procedure made compulsory in the United States Army

in 1911, that this disease ceased to become a distinct menace in our service whenever any considerable body of troops were mobilized under the conditions usually prevailing in the field.

With the thorough vaccination of the Army, typhoid fever has appeared only sporadically, usually less than a dozen or two cases a year—this among troops serving in many climates and countries halfway round the world—in fact, has been regarded as a remarkable record and unquestioned proof of the value of typhoid vaccination. During the past year there were 96 cases of typhoid fever in the entire Army with 5 deaths resulting. Of this number 16 cases among Regulars and 71 in the National Guard, a total of 87, occurred within the continental limits of the United States; of the 9 other cases, 7 were in Hawaii and 2 in Mexico.

The results following compulsory vaccination in the Army are now well known and are exemplified by the record of the present year when compared with those for the year 1898 when the Army was operating under similar disadvantages.

The observations of competent observers have proved conclusively that the triple typhoid vaccine, adopted for immunizing the entire Army against typhoid and paratyphoid fevers, gives as good results in immunization as does the typhoid alone and that neither the general nor local reactions following its injection are different in any degree from those occurring after the inoculation of simple typhoid vaccine.

The results, both from a practical and theoretical point of view, are all in favor of combining the three organisms in a single vaccine, and it is believed amply justify the use of the triple typhoid vaccine in immunizing our troops against the typhoid and paratyphoid fevers.

Paratyphoid fever.—Paratyphoid fever had been but little known and rarely diagnosed and reported in our military service prior to the year 1916. Many such cases had undoubtedly been reported as fevers of undetermined causation.

There were 410 cases of this disease reported in the entire Army—114 for Regulars and 296 for the National Guard.

During the mobilization of the Regular Army and National Guard on the Mexican border and during the expedition into Northern Mexico, paratyphoid fever was recognized quite frequently, and in two forms caused by distinct bacilli known as paratyphoid "A" and paratyphoid "B," the former being the causative agent in the very large proportion of cases.

Vaccination against the disease was rigorously instituted by the Acting Surgeon General with the result that several outbreaks of the disease in the Southern Department were immediately checked, all troops in the infected divisions being fully immunized against the disease. There were 410 cases of paratyphoid fever reported, 2.32 per 1,000 of mean strength, of which over 95 per cent were of the "A" type. These cases were distributed as follows: The Regular Army furnished 114 cases, of which number 22 occurred in the United States, 91 in Mexico, and 1 in China. The National Guard had 296 cases which, with the 22 for Regulars, made 318 in the year for the United States.

Vaccination against both typhoid and paratyphoid fever is now accomplished by the use of a mixed vaccine, recently adopted and known as "The Triple Vaccine" from the fact that it is made from

the bacillus typhosus, the bacillus paratyphosus A, and bacillus typhosus B.

This vaccine prepared, as have been all the Government vaccines in the past few years, in the laboratories of the Army Medical School, Washington, D. C., is given in a single series of three doses, the first containing $\frac{1}{2}$ c. c. and second and third doses 1 c. c. each, with an interval of approximately 10 days between each administration.

Malarial fevers.—As in previous years, this disease shows a marked decrease throughout the Army, with the possible exception of certain of the garrisons in the Philippine Islands situated in malarious districts, and with many carriers among the local native population. The admission rate in 1916 for this disease in the entire Regular Army was 23.61, slightly lower than for the previous year, when it was 25.16 per 1,000 of mean strength. The noneffective rate was 0.62 as against 0.54 for the previous year. The National Guard had a case rate of 31.50 with 0.64 noneffective per 1,000 of mean strength.

Measles.—Regular troops serving in the United States (continental) year 1916 furnished 1,247 cases of measles and 9 deaths, proportionately 19.35 and 0.14 per 1,000 of mean strength, as compared with 12.86 and 0.14 for the National Guard. The entire Army, Regulars and National Guard, all stations, home and abroad, had 2,168 cases and 18 deaths, respectively, 12.24 and 0.10 per 1,000 of strength. The rates for Regulars in 1915 were, respectively, 8.33 and 0.29.

The recruit depots, particularly at Columbus Barracks and Jefferson Barracks, Mo., were frequently overcrowded during the winter and early spring months, with the result that has invariably attended such congestion. Many cases of measles occurred, chiefly among the highly susceptible material from the southern rural districts, the cases not infrequently being complicated with middle ear disease—empyema and broncho-pneumonia; all were very serious complications, particularly the latter, and as in civil life resulted fatally in a considerable number of instances.

In this connection it is a timely thing to again utter the earnest warning against the overcrowding of troops, particularly recruits and fresh levies in their tents, camps, barracks, and cantonments.

Overcrowding and close contact of the well with the sick in the early stages of illness is the prime cause in rapid spread of practically every disease, but more especially is this true of those affecting the naso-pharynx and the respiratory system, including tuberculosis, measles, mumps, scarlet fever, pneumonia, and epidemic meningitis.

The occurrence of measles in epidemic form among certain organizations in camp on the Mexican border gave an opportunity for competent observers to investigate the disease under the conditions obtaining in the field and led to the conclusion of a well-known authority that not only are measles epidemics preventable, but that in the future they should be prevented not only in the field but also in barracks and recruit depots, the result being assured, if proper ventilation and other facilities are provided and attention given to the important matter of the prevention of overcrowding; to the prompt isolation of contacts, and to the careful segregation of the nonimmune, all under rigid and repeated inspections by trained medical officers.

Tuberculosis.—Pulmonary tuberculosis continues to hold a very important position among the cause for disability discharge from the

Army, and the desirability of early recognition of the disease, particularly at recruit stations and depots in applicants for enlistment, is at once apparent, and the matter has been given careful consideration.

As at present provided, all candidates for the military service will be given not only the usual strict physical examination always required under the existing regulations but will be further brought under the observation of a special board of experts chosen from the distinguished clinicians of the Medical and Medical Reserve Corps of the Army. The duties of these special examiners are most important and are included under the following general heads: (1) To exclude cases of manifest tuberculosis from the Army; (2) to hold to service men who allege tuberculosis as a ground for exemption under the selective draft, or discharge on the basis of insufficient or incorrectly interpreted signs and symptoms; (3) to determine in cases of soldiers accepted for the military service the existence of pulmonary tuberculosis and to decide whether or not the disease has been incurred in the line of duty. Definite and explicit instructions to govern these examiners have been prepared and issued by this office.

Venereal disease.—It has often been assumed by well-meaning but ill-informed critics that illicit sexual intercourse and venereal diseases are more common in the military forces of the United States than in civil life.

That this is an erroneous conclusion is well known to most of the medical practitioners of the country, and one resulting principally from the fact that the statistics of these diseases are collected by the Surgeon General of the Army and frankly published, whereas the corresponding figures for civilian life are incomplete and inaccessible.

Recent legislation giving to the Secretary of War and the military commanders authority to control not only, as heretofore, the military reservations and cantonments, but also the civil communities immediately adjacent, in all matters relating to prostitution and the sale of alcoholic drinks, will do much to bring about the desirable conditions long sought for by the Army sanitarian.

It should be repeated that venereal diseases have never had their origin in military reservations, where strict discipline and constant inspections have rendered it impossible, but rather in the laxly governed civil communities surrounding many Army posts, where ignorance of conditions and indifference, or something even worse on the part of local authorities, have conduced to widespread infection, not only of the civil population but the soldiery as well.

The law referred to, which marks such a great step forward in the matter of military sanitation and hygiene in our country, was promulgated May 24, 1917, as sections 12 and 13 of Bulletin No. 32, War Department, as follows:

SEC. 12. That the President of the United States, as Commander in Chief of the Army, is authorized to make such regulations governing the prohibition of alcoholic liquors in or near military camps and to the officers and enlisted men of the Army as he may from time to time deem necessary or advisable: *Provided*, That no person, corporation, partnership, or association shall sell, supply, or have in his or its possession any intoxicating or spirituous liquors at any military station, cantonment, camp, fort, post, officers' or enlisted men's club, which is being used at the time for military purposes under this act, but the Secretary of War may make regulations permitting

the sale and use of intoxicating liquors for medicinal purposes. It shall be unlawful to sell any intoxicating liquor, including beer, ale, or wine, to any officer or member of the military forces while in uniform, except as herein provided. Any person, corporation, partnership, or association violating the provisions of this section or the regulations made thereunder shall, unless otherwise punishable under the Articles of War, be deemed guilty of a misdemeanor and be punished by a fine of not more than \$1,000 or imprisonment for not more than 12 months, or both.

SEC. 13. That the Secretary of War is hereby authorized, empowered, and directed during the present war to do everything by him deemed necessary to suppress and prevent the keeping or setting up of houses of ill fame, brothels, or bawdy houses within such distance as he may deem needful of any military camp, station, fort, post, cantonment, training or mobilization place; and any person, corporation, partnership, or association receiving or permitting to be received for immoral purposes any person into any place, structure, or building used for the purpose of lewdness, assignation, or prostitution within such distance of said places as may be designated, or shall permit any such person to remain for immoral purposes in any such place, structure, or building as aforesaid, or who shall violate any order, rule, or regulation issued to carry out the object and purpose of this section shall, unless otherwise punishable under the Articles of War, be deemed guilty of a misdemeanor and be punished by a fine of not more than \$1,000 or imprisonment for not more than 12 months, or both.

VACCINATION IN THE ARMY.

The subject of vaccination against smallpox, typhoid, and paratyphoid fevers is one concerning which this office has received many inquiries.

It may be stated here that the question of vaccination against the three diseases mentioned above has been considered by both the line and staff many times in the history of the Army, particularly with reference to vaccinations against smallpox, with the result that War Department orders have always required compulsory vaccination against smallpox.

In this connection the experience of the French in the Franco-Prussian War should be remembered. In 1870 one of the worst epidemics of smallpox of recent times spread throughout Europe, largely due to the movement of troops. This epidemic did not cease until after 1873, when peace conditions again prevailed.

The Germans were fairly well vaccinated, for, while there was no revaccination law, those entering the army were always vaccinated, while in France vaccination was very poorly practiced.

As a result, there were not only more cases in the French Army, but they were of a more malignant type. Therefore, the absolute mortality was 50 times greater in France than in Germany and the rates of deaths to the number of cases nearly twice as large.

Vaccination (inoculation) against typhoid fever was a direct outgrowth of the disastrous epidemics of typhoid in our camps during the Spanish-American War. The commission which investigated this notable epidemic (Majors Reed, Vaughan, and Shakespeare) demonstrated that one-fifth of the soldiers in the national encampments had typhoid fever. Among 107,973 men there were 20,738 cases and 1,580 deaths.

The experience of the British in South Africa was equally deplorable.

Antityphoid vaccination protects us against similar disasters and is the only method which protects under war conditions.

Voluntary antityphoid vaccination was begun in the United States Army in 1909 and continued until the mobilization at San Antonio, Tex., in March, 1911. Since that time it has been compul-

sory in the military service. Full protection of the Army against typhoid was not obtained in the Army until the vaccination was made compulsory.

The sanitary and military necessity for compulsory vaccination against smallpox, typhoid, and paratyphoid in every person associated closely with the military forces of the country has been clearly and forcibly demonstrated. No exceptions should be made; every officer, enlisted man, and civilian employee should be fully immunized, for, as can be readily understood, an unprotected individual is a menace, not only to himself but to the whole command with which he is associated.

SPECIAL DISEASES.

In view of the increasing importance to the military service of mental diseases—diseases of the cardio-vascular system and orthopedics—particularly in relation to recruiting of new levies, the Surgeon General has called to the assistance of the experts of the Regular Medical Corps, as consultants, eminent members of the Medical Reserve Corps skilled in these specialties, who will be assigned to the large military stations for duty as occasion may require.

They will act either as members of the medical staff of the organization, with more or less permanent assignment to it, or in certain cases they may visit a command for a temporary service to act as consultants with the camp surgeon or to give instruction in their specialties to the medical officers on regular duty with the troops.

HOOKWORM DISEASE.

Several regiments recruited from the rural districts and small towns of the Southern States have been subjected to special investigation by experts of the Medical Corps to determine the frequency of hookworm infection. The results are such as to demonstrate clearly the wisdom of making a routine examination of all recruits entering the service from certain geographical regions, as is now being done.

It has been shown, for example, that three regiments from different States of the South, consisting of approximately 3,400 men, contained individuals infected with hookworm, the percentages of those harboring the parasite being reported as 6, 32, and 54 per cent of the total strength of the organizations.

The American hookworm (*necator Americanus*) is prevalent nearly everywhere in the Southern States and has been frequently found in our island possessions. The freeing of the population in Porto Rico from this demoralizing pest constitutes one of the most valuable pieces of scientific and economic work ever accomplished by a medical officer of the Army. More recently members of the Medical Corps, serving with commissions appointed for the purpose of investigating the hookworm problem in the United States, have rendered important reports and contributed much to the general knowledge of the subject in this country.

LOBAR PNEUMONIA.

This disease, always an important one and heading the mortality list of acute diseases in both military and civil life, prevailed in a marked degree among certain organizations in the Southern Depart-

ment during the winter and early spring months of 1916-17. The localized epidemics were given careful study by special medical officers detailed for that purpose, and their valuable reports have already been published and widely read.

It has been demonstrated that if camps are maintained during the winter months epidemic lobar pneumonia must be given serious consideration by the military sanitarians, a fact recently shown not only by our experience but also by the reports from the armies abroad.

So that in addition to our labors against the other diseases, whose infection is acquired through the nasopharynx, such as measles, mumps, diphtheria, and meningitis, we must now give renewed and most extraordinary attention to our precautions against "this greatest of all the captains of the men of death."

Epidemic lobar pneumonia may be expected in the great camps during the winter months as a result of infection by a pneumococcus, occurring in two principal types. Evidence at hand indicates that tent, company, and regimental contagion is probable. Serum treatment has produced excellent results in keeping down mortality, while vaccination is considered quite as valuable a measure of prevention as isolation. A combined pneumococcus and meningococcus vaccine has been strongly urged for immunizing a command when the action is indicated by the character of the epidemic.

THE ARMY MEDICAL SCHOOL.

The Army Medical School, now located at 462 Louisiana Avenue NW., Washington, D. C., has had the most important and successful year in its history and has experienced a development and expansion quite beyond the thought and purpose of its founders. The wide scope of its present activities and the very important work it has accomplished during the past 12 months, not only for the Army but also for the other branches of the military service, is clearly set forth in the report of Col. William H. Arthur, Medical Corps, who as the commandant of the school since October, 1915, with the aid of an efficient corps of assistants, has produced the splendid and far-reaching results already mentioned and now generally appreciated throughout the country. Attention is invited specially to the statement of the Army Medical School which appears in the following pages.

In the report of last year referring to the school it was stated that its importance to the military service could hardly be overestimated and recommended that steps be taken looking to the securing by the Government of a suitable modern building specially designed for its purposes.

Heretofore its activities have been in no small degree handicapped by crowded or imperfectly arranged rented buildings, and while its present quarters are much better adapted to the uses of the school than any of its former homes, yet they are far from ideal in arrangement, size, and location and leave much to be desired.

The Army Medical School having now demonstrated fully its great sphere of usefulness in both scientific and utilitarian lines, the Government should no longer hesitate in providing it a permanent and modern home of its own—one that might quite possibly with advantage be made sufficiently large to house also the library of the Surgeon General and the museum.

THE SURGEON GENERAL'S LIBRARY.

The reports of the Surgeon General of the Army have contained in times past references and recommendations relating to the great and unique collection of medical literature now contained in the building at the corner of Seventh and B Streets SW., this city.

The importance of this library of the Surgeon General as it is known to the Army and to the medical profession of the country is well recognized by the entire scientific world, but the fact that it is now housed in a building obsolete, crowded, and nonfireproof does not appear to be so generally known nor to have attracted the immediate attention that the subject deserves.

As has been previously stated, the library of the Surgeon General of the Army began as a small collection of books in the office of Surg. Gen. Lovell in 1835, numbering about 228 volumes in 1840 and increased to about 587 in 1862.

The library in 1865 came first under the master hand of John Shaw Billings, and to this able medical officer and distinguished bibliographer must be given the greatest credit for several unique features in connection with its development. In 1889 the collection consisted of about 1,000 volumes. In 1895 it had grown under the administration of Capt. Billings to 300,000 portraits, books, and pamphlets. During this period the librarian conceived and promptly initiated the ingenious plan of a medical catalogue, indexed for author and subject, that should embrace not only monographs and standard works but also the reports of individual cases, upon which so many conclusions of medical science depend.

From this beginning has developed the Universal Catalogue of Medical Literature. The Index Catalogue, the first volume of which was issued in 1880, consisted of 880 quarto pages. Since that date at least one such issue has been made annually by him and his able successors, Billings himself having edited the entire first 16 volumes, which ran through the alphabet.

This Index Catalogue, requiring great technical knowledge, infallible arrangement, and unceasing industry, has been kept fully up to date, and to the latest professional advances, and, making its way over the earth wherever medical science is known, has brought great credit to the Army and fame to its designer and compilers, and has received the high commendation of the whole world, praise not given to mediocre work.

The Surgeon General's library on June 30, 1917, contained bound volumes, theses, journals, transactions, unbound volumes, and pamphlets, constituting the largest and doubtless the most valuable collection of medical literature in the world.

The Army Medical Museum is now located in the same building as the Surgeon General's library and has developed during the past half century in close connection with it.

The museum had its inception under the direction of Surg. Gen. William A. Hammond in 1862. It began very simply, as all the great collections have, but with the passing years under the skilled direction of many capable and devoted hands it has developed into one of the largest, most instructive, and valuable museums in existence.

It consists now of approximately 47,681 specimens, pathological, anatomical, comparative anatomy, microscopical, and miscellaneous,

and about 15,000 photographs and negatives. Approximately 8,000 specimens have been received through donation or secured by exchange with other institutions.

The Surgeon General desires at this time to urge most earnestly that an appropriation be made at once by Congress for the erection of a suitable building to contain these two remarkable collections—the Surgeon General's library and the Army Medical Museum. They constitute one of the Nation's most valued assets and a treasure of inestimable worth to the medical profession and to scientific men and scholars of this and other countries.

There should be no delay in erecting in some central spot in our Capital City a modern, fireproof structure, adequate in every respect to house for all time in safety what is justly considered to be the most useful as well as the most extensive collection relating to medicine and science ever achieved.

MEDICO-MILITARY OBSERVERS.

The outbreak of the great war in August, 1914, found several officers of the Medical Department of the United States Army in Europe. They were promptly detailed and accredited as observers with the several combatant armies. Others were sent over by the War Department in 1915 and later, in May, 1916, several experienced and specially qualified officers of the Medical Corps were detailed upon recommendation of the Surgeon General for duty with the British and French forces on the western battle front.

The excellent work accomplished by all these officers since their arrival in Europe has been a matter of great assistance to the War Department and of particular advantage and satisfaction to the Medical Corps.

The wisdom of having medical officers with the European armies was early recognized and the only regret, now that the United States has since April, 1917, been an active participant in the great struggle is that more of them could not have been spared for duty abroad in the early months of the war.

The courtesies and privileges extended to the representatives of the Medical Corps of the United States Army in Europe have been greatly appreciated by the officers themselves and by the Surgeon General and the authorities of the War Department. As a further evidence of the good will and cooperation that now exists between the medical services of the allied forces, distinguished and highly experienced medical officers of the British and French Armies have been sent by their Governments as aides and consultants on the staff of the Surgeon General of the Army at Washington. The value of the assistance they are so efficiently and cheerfully rendering the United States Medical Department can not be too strongly emphasized and commended.

ARMY NURSE CORPS.

The mobilization of the regular troops and militia on the Mexican border having resulted in the establishment of many hospitals at which nurses were needed, an addition of 276 nurses was authorized early in the year to meet the emergency. Nurses were appointed

in the regular corps as rapidly as possible and their number was further augmented by the assignment of a large number from the reserve, the enrolled nurses of the American Red Cross constituting the reserve. During the year nurses were sent to the following places:

Base Hospital No. 1, Fort Sam Houston, Tex.

Base Hospital No. 2, Fort Bliss, Tex.

Base Hospital No. 3, Brownsville, Tex.

Base Hospital No. 4, Eagle Pass, Tex.

Base Hospital No. 5, Nogales, Ariz.

Camp hospital, Deming, N. Mex.

Camp hospital, Douglas, Ariz.

Camp hospital, Laredo, Tex.

Camp hospital, McAllen, Tex.

Camp hospital, Marfa, Tex.

Cantonment hospital, Columbus, N. Mex.

and to the hospital train which has its headquarters at Camp Wilson, Tex. With the withdrawal of the troops the work at these places gradually decreased and nurses were withdrawn from Columbus, Llano Grande, McAllen, early in the year and later on from Marfa and Deming.

THE MEXICAN EXPEDITION.

The military expedition into northern Mexico, beginning in March, 1916, and covering a period of nearly a year, presented many unusual features from the standpoint of the medical officer and in certain respects was unique.

Detailed reports from the surgeons assigned to the various organizations of the expedition have been received, and when opportunity presents will be given the full treatment they deserve in the form of a special bulletin. The most important features, however, are covered by the chief surgeons of the expeditionary forces in their reports presented in the following pages.

It may be here repeated that this force, consisting of United States troops of all branches of the service, crossed the Rio Grande River in early March, 1916, and entered the Province of Chihuahua, northern Mexico, in pursuit of bands of raiding outlaws, who had repeatedly disturbed the peaceful towns and settlements on the Texas border by unprovoked attacks.

The United States expeditionary force during most of its service consisted approximately of 12,000 men, divided into many detachments of varying size, distributed along an attenuated line of communication which reached several hundred miles southward from the base, established on the Rio Grande.

These troops conducted active and successful military operations in an arid, almost desert country, on a far extended line, under the most trying climatic conditions and with a restriction of food, clothing, and shelter quite unparalleled in the history of the United States Army when the length of service is considered.

During all of this arduous service the troops were maintained in an exceptional condition of health and efficiency. The non-effective rates compared favorably with those of the organizations serving in the home stations under garrison conditions.

The service of the Medical Department was thoroughly efficient and met all the unusual demands upon it in a manner to call forth the unqualified commendation of the commanding general of the expedition. The medical officers and the enlisted men of the Medical Department with the Mexican expedition of 1916 deserve to the fullest degree the praise bestowed upon them officially by their military associates and superiors.

THE MOBILIZATION OF THE REGULAR ARMY AND NATIONAL GUARD.

The concentration of practically the entire Regular Army and the National Guard in the Southern Department during the last six months of 1916 gave very exceptional opportunities for the instruction of troops in all matters relating to personal hygiene and in the sanitary precautions necessary to insure the health and comfort of soldiers in camp and on the march.

Generally speaking it may be said that the measures carried out differed but slightly from those so successfully used in the past few years by the Regular Army in other parts of the world. The strict attention to food and water supplies, to the careful disposal of waste materials of all kinds, coupled with vaccination against enteric diseases and the unceasing and vigilant scrutiny of trained sanitary inspectors, produced the satisfactory results that invariably follow such procedures. The general health of all the troops, as has been said, was excellent. Sporadic outbreaks of communicable diseases were promptly checked and the physical vigor and the military efficiency of the various organizations at the close of the year was a matter of frequent comment and a subject of congratulation for all concerned; the National Guard proving themselves apt pupils, equaling as a rule and frequently excelling the Regular troops with whom they were closely associated in maintaining an exceptionally low sick rate.

THE MILITARY SURGEON AND MEDICAL PRESS.

A large number of professional monographs and special reports, containing valuable information of scientific and military value to the officers of the service, have been received during the past year by the Surgeon General and have been appreciated and utilized so far as was practicable by this office.

The publication and prompt circulation of many of these important papers seemed highly desirable and to this end the medical press of the country has used its extensive facilities most freely and willingly to the very great advantage of the profession and the service.

The various journals of the country have contributed their share in forwarding this good work of education and have secured a publicity not otherwise obtainable at this time through the strictly official bulletins and reports of the year.

Particular attention in this connection is invited to "The Military Surgeon," the journal of the Association of Military Surgeons of the United States, which has rendered an exceptionally valuable service under the efficient direction of the associate editor, Col. John Van R. Hoff, Medical Corps, retired.

HEALTH OF THE ARMY.

INTERNATIONAL NOMENCLATURE.

The diagnostic terms for diseases and injuries, adopted by the Medical Department in accordance with the International Nomenclature, are used with the international numbers for the fifth year in this report.

The International Nomenclature is used by most of the important foreign countries. It is also used by the Census Bureau in this country and by an increasing number of boards of health and large hospitals.

In studying statistics for other countries, where the terms used are expressed in a foreign language, the international number furnishes a ready key for their interpretation.

Following Table No. 81 will be found the 10 tables giving the military statistics for the year 1916, as agreed upon at the International Commission for the Unification of the Medical Statistics of Armies, held at Budapest in 1894, at Madrid in 1903, and modified at the last meeting held in Berlin in 1907. The diagnostic terms and numbers used in these tables are those agreed upon by the commission and are not to be confused with the terms and numbers of the international nomenclature used in the remainder of this report and based upon the second decennial revision by the international commission held in Paris, July 1 to 3, 1909.

As in 1912, 1913, 1914, and 1915, only original admissions are used in compiling the statistics in this report. In the years 1904 to 1911, inclusive (reports 1905-1912), the readmissions were counted as admissions. In this report in making comparisons between cases and admissions the terms case admission (reports 1913-1916, inclusive, and prior to the one for 1905) and total admission (reports 1905-1912, inclusive) will be used.

ADMISSION RATES.

Table No. 81 shows the total admission and case admission rates for American troops of the Army, for the United States, continental (exclusive of Alaska), and for American troops in the Philippine Islands for disease, external causes, and all causes separately for each year 1904 to 1911, inclusive.

Table No. 68½ gives the rates per 1,000 for the entire Army. So much interest has been displayed regarding the incidence of certain diseases, especially tuberculosis, typhoid fever, and venereal diseases, for the entire Army—that is, for all officers and enlisted men, both American and native troops—that it was deemed advisable to publish this data to include all troops together. The rates for American troops, enlisted men, placed in comparison for ready reference, may be found in Tables No. 69 and 76.

OFFICERS.

The mean strength of officers was 4,734, as obtained from the reports of sick and wounded of the Medical Department, and 5,155 from the office of The Adjutant General. There were 2,408 admissions, 40 deaths, and 110.98 constantly noneffective from all causes,

equal to ratios of 508.66, 7.76, and 23.44, as compared with ratios of 553.03, 3.69, and 23.57 per 1,000 for the year 1915. The constantly noneffective rate was higher than for 1915; the admission was lower.

The chief causes of admission and their rates were: Diarrhea and enteritis, 57.24 for 1916, as against 39.14 for 1915; influenza, 51.75 as against 60.54 for 1915; diseases of the pharynx, 30.84 as against 31.63 for 1915; bronchitis, 29.57 as against 42.33 for 1915; diseases of the nasal fossæ, 24.29 as against 29.59 for 1915; and dengue, 11.41, as against 20.94 for 1915.

OFFICERS RETIRED.

Forty-five officers were retired on account of disability during the year, making a rate for retirement for disability of 8.73 per 1,000, as compared with 3.69 per 1,000 for 1915. The discharge rate for disability in enlisted men (all) was 15.98, as compared with 14.06 per 1,000 for 1915.

The following table shows the principal causes for which retirements were made and the rank and age of the officers retired:

TABLE NO. 1.—*Retirement of officers, United States Army, year 1916, for disability, by causes and rank, grouped by ages.*

	Total.		Ages of officers, quinquennial groups.								
	Num-ber.	Ratio per 1,000 of all officers.	24 years and under.	25 to 29 years.	30 to 34 years.	35 to 39 years.	40 to 44 years.	45 to 49 years.	50 to 54 years.	55 to 59 years.	60 years and over.
CAUSES OF RETIREMENT.											
Arteriosclerosis.....	7	1.36						1		3	3
Bright's disease.....	6	1.16			2		1	2		1	
Neurasthenia.....	4	.78					2		1		
Tuberculosis, pulmonary.....	3	.58		2		1					
Arthritis, chronic.....	2	.39				1	1				
Valvular heart disease.....	2	.39				1	1				
Dementia from chronic pellagra.....	1	.19			1						
Tumor of brain.....	1	.19					1				
Diabetes mellitus.....	1	.19					1				
Epilepsy.....	1	.19		1							
Neurosis.....	1	.19					1				
Psychasthenia.....	1	.19			1						
Psychosis, traumatic.....	1	.19				1					
Defective mentally.....	1	.19							1		
Neuritis, chronic.....	1	.19					1				
Myopic astigmatism.....	1	.19					1				
Cataracts.....	1	.19						1			
Impaired vision.....	1	.19					1				
Impaired hearing.....	1	.19				1					
Bronchiectasis, chronic.....	1	.19							1		
Gastric neurosis, chronic.....	1	.19							1		
Cirrhosis of liver.....	1	.19						1			
Gunshot wound.....	1	.19			1						
Amputation of leg.....	1	.19			1						
Loss of tendon, right leg.....	1	.19				1					
Old injury to left leg.....	1	.19			1						
Sacro-iliac disarticulation.....	1	.19							1		
RANK IN SERVICE.											
Major general.....	1	.19								1	
Colonel.....	7	1.36							2	2	3
Lieutenant colonel.....	1	.19								1	
Major.....	7	1.36		1	6	5	3	2	1	1	
Captain.....	23	4.46		1	6	5	7	3	1		
First lieutenant.....	5	.97		2	1	1	1				
Second lieutenant.....	1	.19		1							
Number of retirements.....	45	8.73		4	7	6	11	5	4	5	3

There were 43 deaths, with a rate of 8.34 per 1,000, as compared with 18 deaths, with a rate of 3.69 in 1915.

The following table shows the causes of deaths of officers:

TABLE NO. 2.—Deaths of officers, United States Army, year 1916, by causes and rank, grouped by ages.

	Total.		Ages of officers, quinquennial groups.									
	Number.	Ratio per 1,000 of all officers.	24 years and under.	25 to 29 years.	30 to 34 years.	35 to 39 years.	40 to 44 years.	45 to 49 years.	50 to 54 years.	55 to 59 years.	60 years and over.	
CAUSES OF DEATH.												
Gunshot wounds (suicide 4, in action 2, homicide 1).....	7	1.36	.....	.....	1	1	1	1	2	1	.....	
Pneumonia (lobar).....	4	.78	.....	1	.....	.....	2	.....	.....	.....	1	
Fracture of skull.....	3	.58	.....	2	1	.....	.....	.....	.....	.....	.....	
Appendicitis.....	3	.58	.....	1	.....	.....	1	1	.....	.....	.....	
Bronchopneumonia.....	3	.58	.....	.....	.....	.....	2	.....	1	.....	.....	
Arterial sclerosis.....	2	.39	.....	.....	.....	.....	.....	.....	.....	1	.....	
Typhoid.....	2	.39	.....	.....	1	.....	.....	.....	1	.....	.....	
Apoplexy.....	1	.19	.....	.....	.....	.....	.....	1	.....	.....	.....	
Dysentery, entamoebic.....	1	.19	.....	.....	.....	.....	1	.....	.....	.....	.....	
Tuberculosis, pulmonary.....	1	.19	.....	.....	1	.....	.....	.....	.....	.....	.....	
Tuberculous meningitis.....	1	.19	1	.....	.....	.....	.....	.....	.....	.....	.....	
Tumor, suprarenal gland.....	1	.19	.....	.....	.....	.....	1	.....	.....	.....	.....	
Leucæmia.....	1	.19	.....	.....	.....	1	.....	.....	.....	.....	.....	
Myocarditis, chronic.....	1	.19	.....	.....	.....	.....	.....	.....	.....	1	.....	
Ulcer of stomach.....	1	.19	.....	.....	.....	.....	.....	.....	.....	1	.....	
Ulcer of duodenum.....	1	.19	.....	.....	.....	1	.....	.....	.....	.....	.....	
Cirrhosis of liver.....	1	.19	.....	.....	.....	.....	.....	.....	1	.....	.....	
Biliary calculi.....	1	.19	.....	.....	.....	.....	1	.....	.....	.....	.....	
Nephritis, interstitial.....	1	.19	.....	.....	.....	.....	.....	.....	.....	1	.....	
Raynaud's disease.....	1	.19	.....	.....	.....	1	.....	.....	.....	.....	.....	
Carbuncle.....	1	.19	.....	.....	.....	.....	.....	1	.....	.....	.....	
Sphenoiditis, chronic, pneumo- coccus infection.....	1	.19	.....	.....	.....	1	.....	.....	.....	.....	.....	
Asphyxia, accidentally buried in snow.....	1	.19	.....	1	.....	.....	.....	.....	.....	.....	.....	
Drowning, accidental.....	1	.19	.....	.....	.....	1	.....	.....	.....	.....	.....	
Concussion, cerebral, accidental.....	1	.19	.....	.....	.....	.....	.....	1	.....	.....	.....	
Crushing, automobile accident.....	1	.19	.....	.....	1	.....	.....	.....	.....	.....	.....	
RANK IN SERVICE.												
Major general.....	1	.19	.....	.....	.....	.....	.....	.....	.....	.....	1	
Colonel.....	4	.78	.....	.....	.....	.....	.....	.....	2	2	.....	
Lieutenant colonel.....	1	.19	.....	.....	.....	.....	.....	.....	.....	1	.....	
Major.....	5	1.16	.....	.....	1	.....	1	3	1	.....	.....	
Captain.....	18	3.49	.....	.....	.....	5	7	2	2	1	.....	
First lieutenant.....	11	2.13	.....	3	4	1	1	.....	1	1	.....	
Second lieutenant.....	3	.58	1	2	.....	.....	.....	.....	.....	.....	.....	
Number of deaths.....	43	8.34	1	5	5	6	9	5	6	5	1	

NOTE.—Three deaths reported on this table occurred at private hospitals and were not included in general statistics.

ENLISTED MEN.

The mean enlisted strength of the Army, American troops, white and colored, for the year 1916, as reported on the monthly sick reports of the Medical Department and on the returns of The Adjutant General's Office, was 99,186. There was an increase in strength over the year 1915, for which the medical returns showed 93,262 and The Adjutant General's Office 94,729.

During the year 1916 American troops were stationed in the United States proper, the Philippine Islands, China, Alaska, Hawaii, Canal Zone, and Mexico. Native troops served in Porto Rico and the

Philippine Islands. Statistics for the native troops—Porto Ricans and the Philippine Scouts—have been separately compiled, and when reference is made to the "Army" in this report the entire Regular Army—officers, white, colored, and native enlisted men—is meant.

The size of garrisons in the Tropics, which constituted such a large percentage of our military forces, renders of more importance than formerly the general rates for the entire Army.

Charts A, B, C, D, E, F, and G are for the entire Army for the decade 1906–1916. For years prior to 1906 the same data as shown in these charts will be found published in the report for 1912, pages 14, 15, and 16.

Table No. 76 gives American troops, enlisted men by countries placed in comparison for 1916.

The admission and noneffective rates for the entire Army and for the troops in geographical divisions are readily comparable in the following tabulation:

Admission and noneffective rates for Regular Army entire and for troops in geographical divisions for years 1916 and 1915.

	Army (en- tire).	Amer- ican troops of the Army (en- listed men).	Enlisted men serving in geographical divisions.									
			United States (at home).	Mexi- can puni- tive expe- diti- on.	Alas- ka.	Canal Zone.	Haw- waii.	Philippine Islands.		China.	Porto Rico.	
								Amer- ican troops.	Native troops.			
Admission rates:												
1916.....	726.45	747.59	745.38	810.16	344.97	849.63	514.51	838.60	482.17	890.24	1,037.70	
1915.....	726.19	744.59	704.01	.....	386.63	871.00	568.94	990.45	573.84	1,462.17	555.07	
Noneffective rates:												
1916.....	26.99	27.98	30.67	15.62	9.23	28.15	19.22	27.88	14.58	31.31	25.35	
1915.....	25.22	25.88	25.74	.....	8.91	26.00	20.44	29.15	15.68	35.00	22.78	

The rates are slightly higher this year for the United States and Porto Rico. A decided reduction in admission and noneffective rates occurred in Alaska, Canal Zone, and the Philippine Islands, American and native troops. The most marked reduction is noted in the admission rate and in the noneffective rate for the troops serving in China.

ADMISSION TO SICK REPORT (AMERICAN TROOPS, ENLISTED MEN).

[See Tables Nos. 69 and 76.]

The admissions to sick report during the year 1916 show a slight increase, being 747.59 as compared with 744.59 in 1915. The admission rate for disease only is 619.22; in 1915 it was 610.32. Table No. 81 shows the case admission and total admission rates for all American troops, those in the United States and those in the Philippine Islands, 1904 to 1911, inclusive. The diseases causing the highest admission rates in 1916 were: Venereal, 103.35; diseases of the pharynx, 56.46; diarrhea and enteritis 49.81; bronchitis, 33.88; and influenza, 29.04. The rates just given are for the American enlisted men of the Army and are given first for convenience of comparison. For the entire Army (all officers and enlisted men, including native troops) the ad-

mission rate is 726.45. For disease only the rate is 604.04, being slightly higher both among the American troops and for the entire Army. This is probably accounted for by the increased rates for diarrhea and enteritis.

For venereal diseases the rate for white troops was 100.75, a decrease over 1915; for colored, 147.10, which was slightly higher than for 1915. The rates in the Philippines for these troops were 155.91 and 246.56, respectively, which are lower for both races over the rates of 1915 in the Philippines, 177.08 and 258.76, respectively. These high rates are undoubtedly due to social conditions and indicate the necessity for a change of conditions before rates comparable to those obtaining in the United States may be expected. As the rate for 1912 for colored troops in the Philippines was 524.06, the highest recorded in the Army, the present rate is an index of the effectiveness of the measures instituted for improvement in this condition.

The case admission rate for external causes, American troops, enlisted men, 1916, was 128.36. In 1915 this rate was 134.27, and in 1914, 126.37. The principal causes for this rate were: Traumatism by fall, 30.89; traumatism by cutting or other piercing instruments, 12.65; injuries by animals, 11.38; traumatism by crushing, 8.87; traumatism by firearms, 3.90; burns, 3.56; and poisoning by food, 2.49.

NONEFFECTIVE RATES.

Chart B shows for the entire Army the constantly noneffective rate for all causes from the year 1907 to 1916, inclusive. This rate is the true measure of nonefficiency of the Army from sickness and injury. The rate for disease and injury obtained for the total American troops, enlisted men, for the year 1916 was 27.98, as compared with 25.88 for 1915 and 24.02 per 1,000 in 1914. The rate for 1914 is the lowest recorded noneffective rate in the history of the Army. The highest noneffective rate on record was for the year 1898, when the total rate was 82.83 per 1,000, and the rate for diseases alone was 69.09.

The noneffective rate for all troops in the military service, or the entire Army, from all causes, was 26.99 (for disease alone, 22.63), which is slightly higher than that for 1915, but still much below the rates for any preceding year, except 1914, when the rate was 23.78. This rate during the past decade shows a steady reduction. In 1906 the noneffective rate was 47.86.

DISCHARGES FOR DISABILITY.

Chart D gives the rates for discharged for disability for the Army from the year 1907 to 1916, inclusive.

Soldiers stationed outside of the territorial limits of the United States are brought to the United States for discharge, except those belonging to the Porto Rican Regiment and the Philippine Scouts. They are, however, credited in the tabulated reports to the country in which the soldiers were serving when they became disabled, if their commands were there at date of discharge.

The present system requires that all soldiers certified by medical officers to be permanently incapacitated for the military service shall be critically examined by a board of two medical officers before

Chart A.—Army. Officers and American and native troops.
 [Admission rates, all causes, years 1906-1916.]

Years	Rates.	1	2	3	4	5	6	7	8	9	0	1
		0	0	0	0	0	0	0	0	0	0	0
* 1906	1188.											
* 1907	1102.											
* 1908	1079.											
* 1909	964.											
* 1910	870.											
* 1911	858.											
1912	806.											
1913	666.											
1914	660.											
1915	726.											
1916	726.											

* Excess of cases deducted to correspond with years preceding 1906, and 1912 to 1916.

Chart B.—Army. Officers and American and native troops.
[Noneffective rates, all causes, years 1906-1916.]

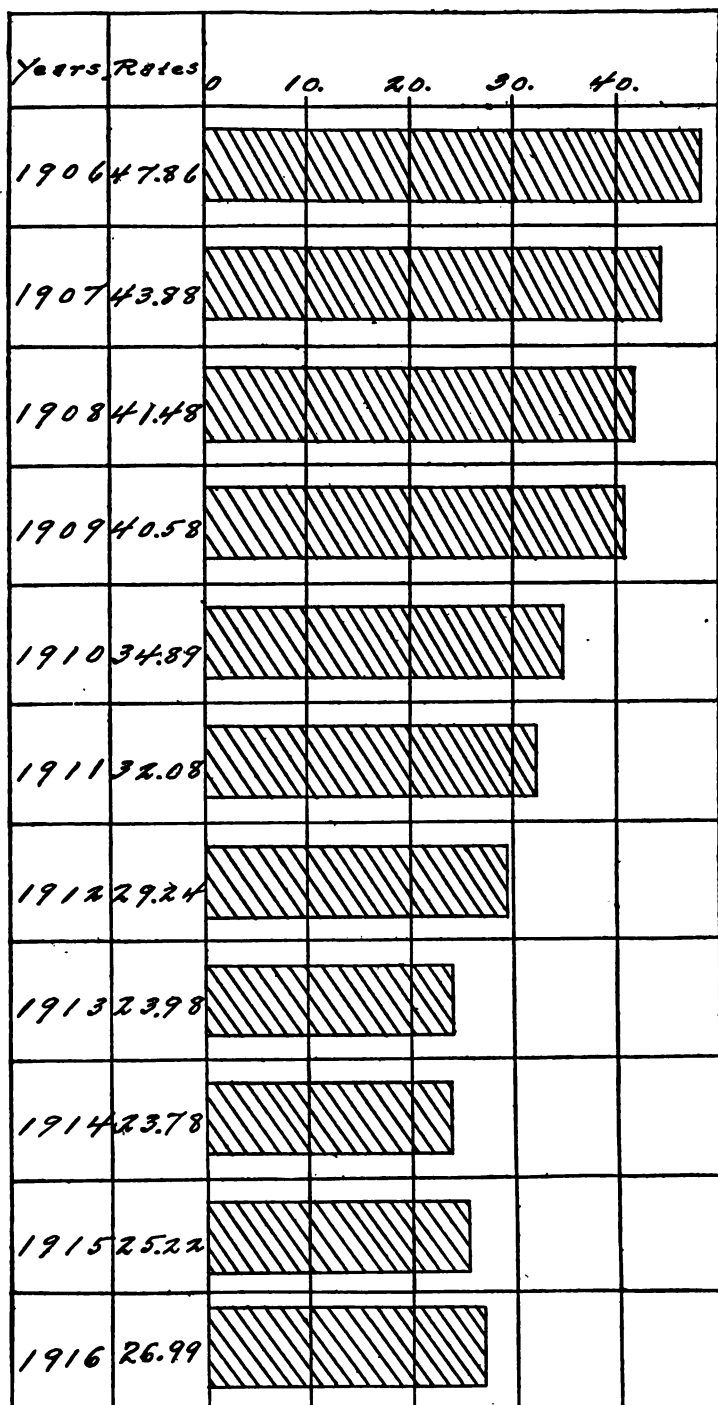
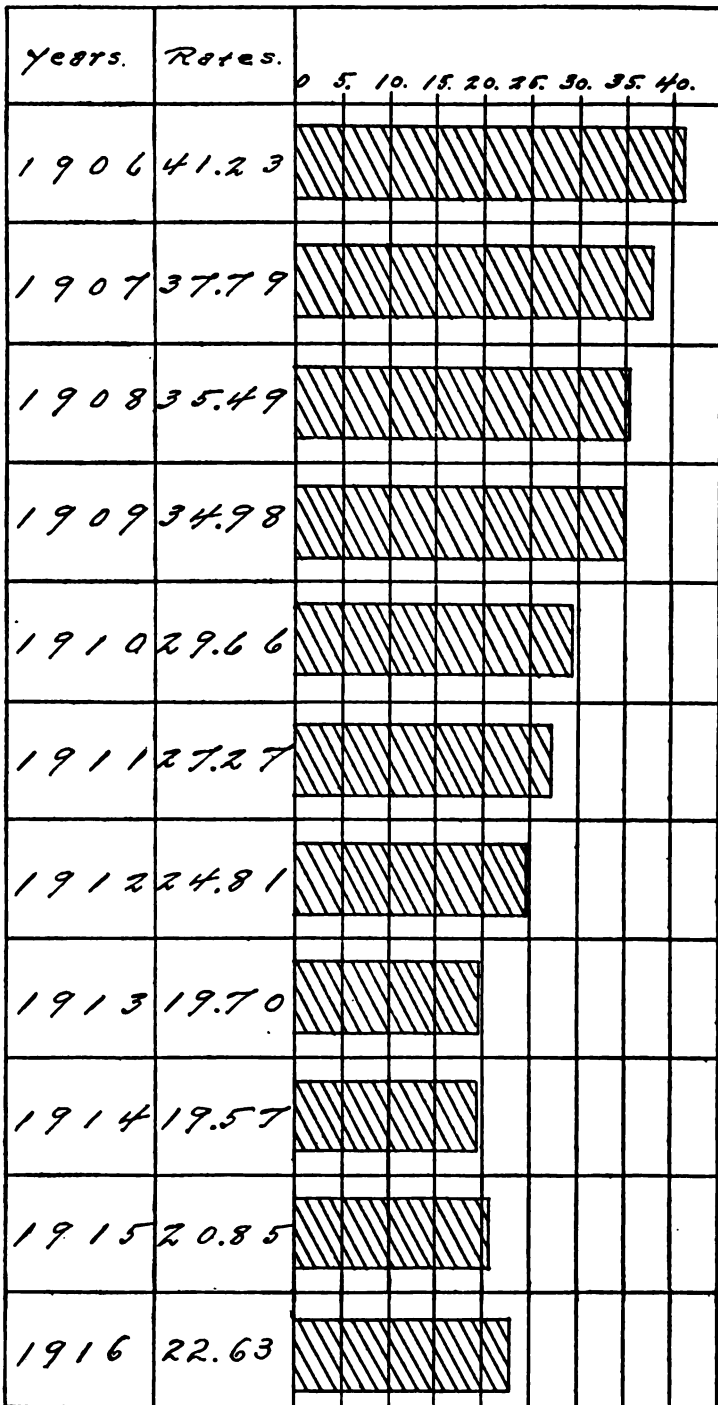


Chart C.—Army. Officers and American and native troops.

[Noneffective rates for disease, years 1906-1916.]



being discharged. The reports of these go to the department headquarters from where discharges are ordered, except in the cases of soldiers at a recruit depot or general hospital, and the reports of boards on insane patients. In the latter circumstances the reports are sent to The Adjutant General of the Army, who directs the discharge or issues the order when insane are recommended to be transferred to the Government Hospital for the Insane, Washington, D. C.

The discharge rate for 1914 was lower than for any year since the Spanish-American War, being 12.99 as compared with 16.52 for American troops for the year 1916. In 1916 there were in the Army 1,639 men, American troops, discharged for disability as compared with 1,351 during 1915. The rate for 1867 was 13 per 1,000, and the lowest rate from 1894 to 1898, inclusive, was that for 1895, the lowest on record in the Army, 9.15 per 1,000. The highest rate in any year for discharge for disability was in 1849, when the total rate for discharge was 76.7 per 1,000. The rate for the entire Army, American and native troops, was 15.98 per 1,000.

The discharge rate for disease in 1916 (American troops) was 14.42 per 1,000, as compared with 12.79 in 1915, and that for external causes was 2.11 in 1916, as compared with 1.47 in 1915. The diseases causing the highest discharge rate in 1916 were as follows, absolute numbers and rates per 1,000 being given:

Discharges, enlisted men (American troops), year 1916.

Disease.	Number.	Ratio.
Mental alienation.....	271	2.73
Tuberculosis.....	218	2.20
Veneral diseases.....	159	1.60
Flat foot.....	139	1.40
Epilepsy.....	75	.76
Organic heart disease.....	56	.56

DEATHS FROM ALL CAUSES.

Chart E shows the total death rate for all causes for the Army from the year 1906 to 1916, inclusive. (See also Table 3A.)

For American troops, enlisted, the total rate for 1916 was 5.21 as compared with the corresponding rate of 4.60 for 1915 and 4.45 for 1914. The rate for 1916 is but little above the rate for 1915, but 1914 was the lowest on record in the Army. The highest death rate occurring in any year was in 1849, when the total rate for deaths was 80.2. The death rate for diseases was 2.60 in 1916, 2.60 in 1915, and 2.36 in 1914. The total number of deaths in 1916 was 516. The following diseases caused the highest number of deaths, absolute numbers and rates per 1,000 being given:

Deaths, enlisted men (American troops), year 1916.

Disease.	Number.	Ratio.
Tuberculosis.....	40	0.38
Pneumonia (lober).....	32	.31
Organic heart disease.....	18	.17
Appendicitis and typhlitis.....	18	.17
Cancer.....	14	.13
Bright's disease.....	12	.12

The following were the principal causes of deaths, among officers and enlisted men, American troops, from external causes, with the number in each instance: Suicides, 63; drowning, accidental, 46; wounded in action, 36; homicide, 30; traumatism by other crushing, 29; traumatism by firearms, 24; and traumatism by fall, 13.

INFLUENCE OF STATION ON TROOPS.

Regarding the comparative healthfulness of the various countries in which American troops were serving during the year (Army transports being excluded), it will be noted that Alaska maintains the lowest admission and noneffective rates, 344.97 and 9.23 per 1,000, respectively; Canal Zone the lowest death rate, 3.99 per 1,000; China the lowest discharge rate, 13.63, the highest noneffective rate, 31.31, the highest admission rate, 890.24, and the highest death rate, 10.60. Alaska had the highest discharge rate, 21.48.

Chart D.—Army. Officers and American and native troops.

[Discharge rates, all causes, years, 1906-1916.]

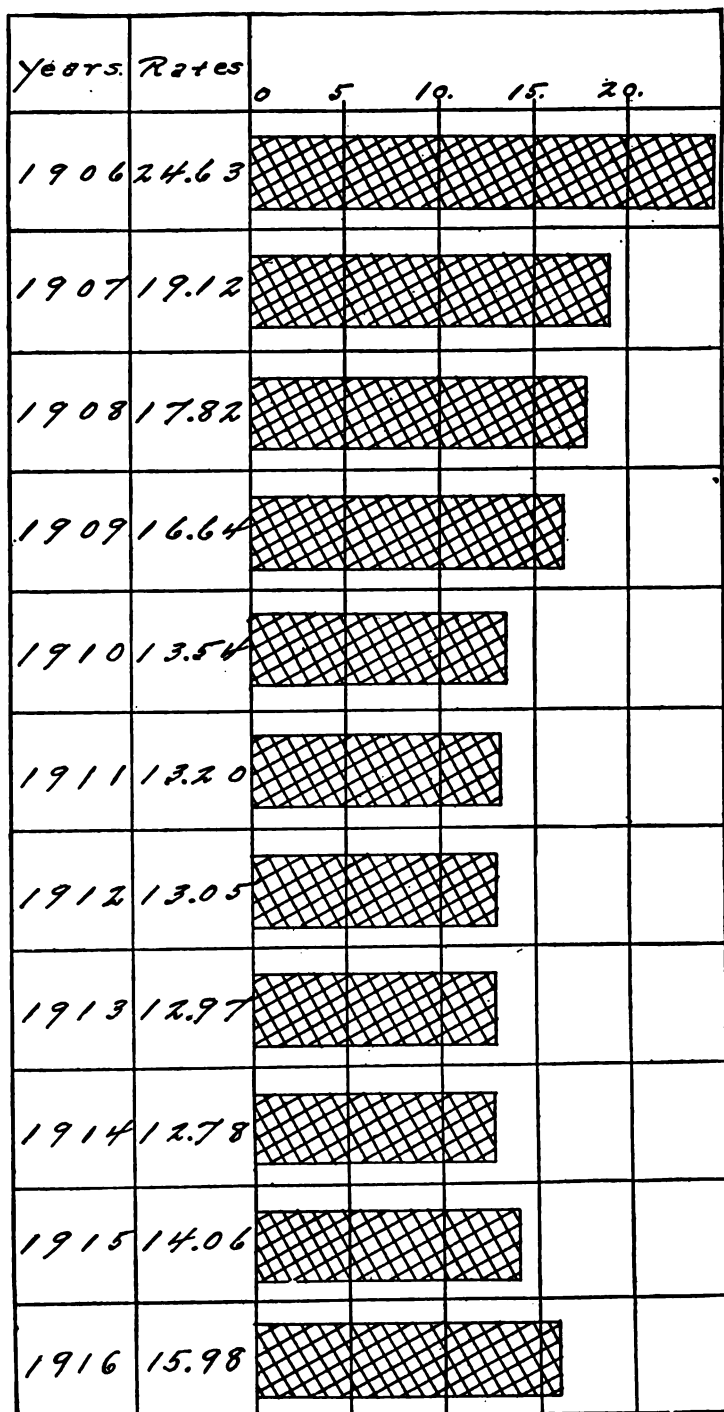


Chart E.—Army. Officers and American and native troops.

[Death rates, all causes, years 1906-1916.]

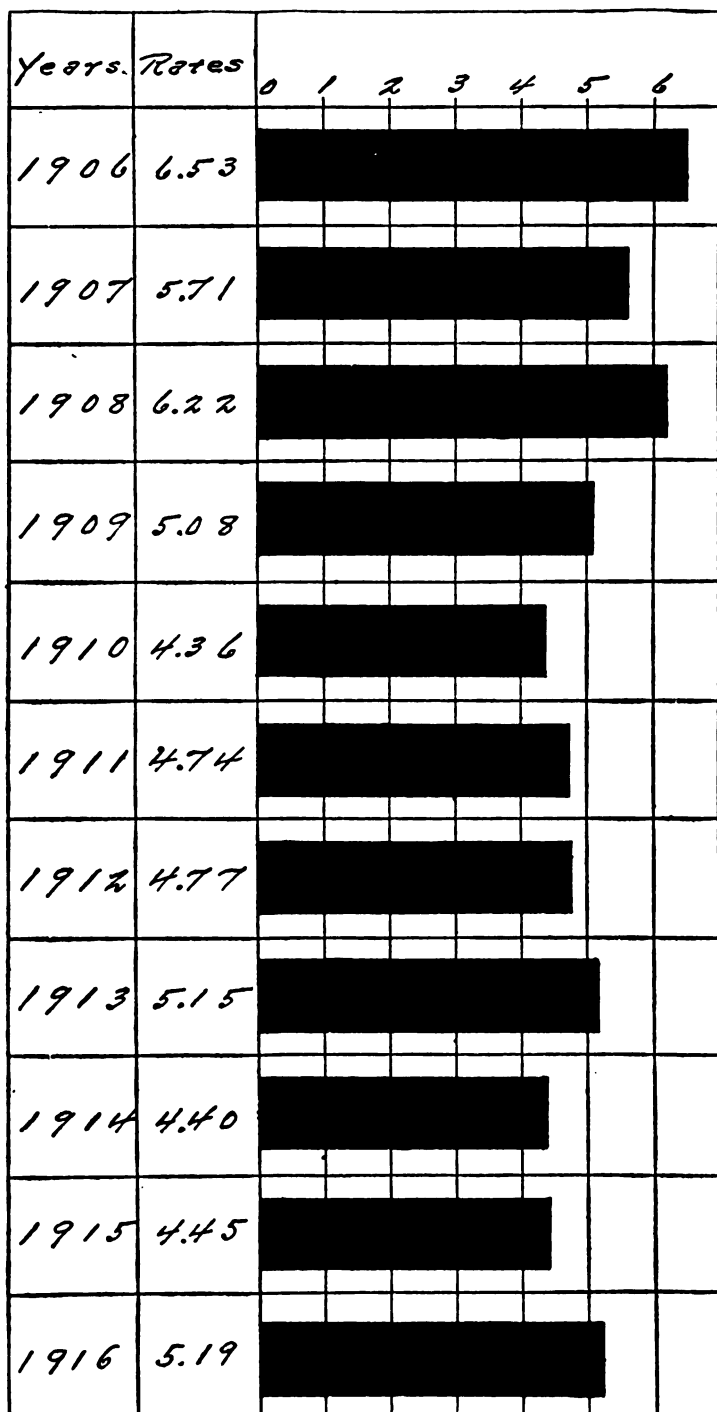


Chart F.—Army. Officers and American and native troops.

[Death, discharge, and noneffective rates for disease, years 1906-1916.]

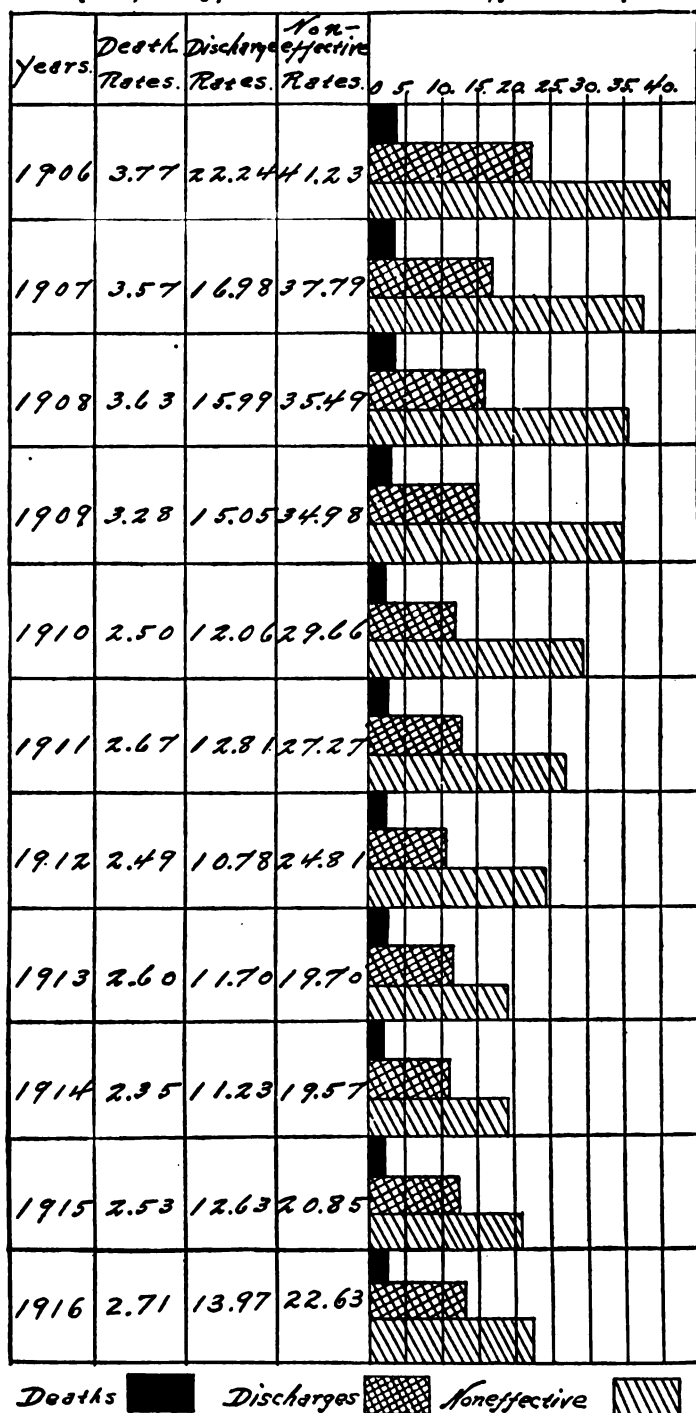


Chart G.—Army. Officers and American and native troops.

[Total losses, all causes, years 1906-1916.]



Chart H.—Army. Officers and American and native troops.

[Admission, discharge, death, and noneffective rates for disease, by countries, year 1916.]

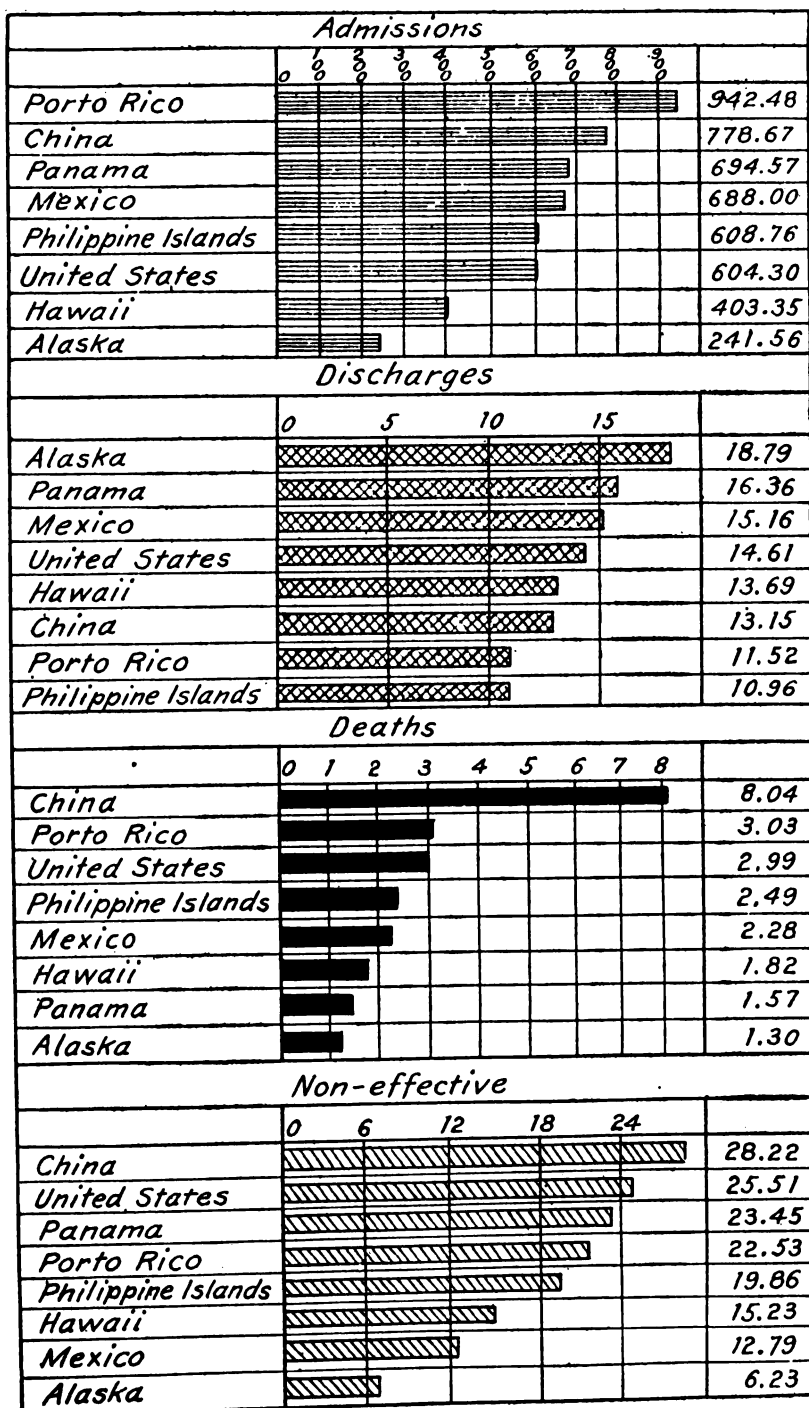


TABLE No. 3.—Numerical view of the effect of disease and injury on United States troops at home and abroad in the years 1916, compared with corresponding data for the year 1915, by countries (enlisted men only).

ABSOLUTE NUMBERS.

American troops (enlisted men).	Mean strength.	Admitted.			Discharged on certificate of disability.			Died.			Total losses.			Non-effective from sickness.	
		Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Days treated.	Constantly non-effective.
United States.....	61,410	45,774	37,615	8,159	1,029	896	132	315	172	143	1,344	1,068	275	690,437	1,883.71
1915.....	63,725	44,863	35,972	8,891	879	771	108	349	193	156	1,228	994	264	598,677	1,940.21
Mexican punitive expedition.....	8,049	6,521	5,534	987	152	122	30	61	17	44	213	139	74	46,020	125.74
Alaska.....	745	257	182	75	16	14	2	5	1	4	21	15	6	2,516	6.87
1915.....	763	295	227	68	9	9	.....	2	1	1	11	10	1	2,492	6.80
Philippine Islands.....	11,580	9,711	8,273	1,438	167	152	15	52	32	20	219	184	35	118,177	322.90
1915.....	11,834	11,721	10,308	1,413	276	262	14	34	18	16	310	280	30	125,910	344.96
China.....	1,321	1,176	1,048	128	18	18	.....	14	11	4	3	32	3	15,140	41.37
1915.....	1,335	1,952	1,802	150	13	12	1	6	4	2	19	16	3	17,054	46.72
Hawaii.....	8,476	4,361	3,437	924	132	116	16	41	14	27	173	130	43	59,617	162.90
1915.....	8,572	4,877	3,779	1,068	97	87	10	27	20	7	124	107	17	63,939	175.17
Canal Zone.....	6,783	5,763	4,769	994	125	111	14	28	11	17	153	122	31	90,881	190.93
1915.....	5,721	4,963	4,114	869	77	71	6	14	7	.....	91	78	13	54,290	143.74
Army transports.....	1,312	587	560	27	.....	.....	.....	4	3	1	.....	3	.....	15,052	41.13
1915.....	1,312	751	718	33	.....	.....	.....	4	3	1	.....	3	.....	18,471	50.61
Total.....	99,186	74,150	61,418	12,732	1,639	1,429	209	516	258	258	2,155	1,068	467	1,015,840	2,775.52
1915.....	93,262	69,442	56,920	12,522	1,361	1,212	139	436	246	190	1,787	1,458	329	890,823	2,413.21
Regular Army, American troops from 1905 to 1914.....	99,741	690,899	554,775	126,124	11,926	10,609	1,257	3,667	2,025	1,642	15,563	12,694	2,899	9,261,927	2,536.12
Porto Rican troops.....	955	912	79	79	11	11	.....	4	3	1	16	15	1	8,892	24.21
1915.....	681	378	340	38	5	5	.....	2	2	1	8	8	1	5,662	15.51
Philippine Scouts.....	5,579	2,660	2,271	419	39	36	3	15	13	5	54	49	5	20,707	81.33
1915.....	5,505	3,159	2,567	502	63	58	5	14	9	5	77	67	10	31,506	86.31

PROPORTIONATE NUMBERS (ENLISTED MEN ONLY).

[Ratio per 1,000 of mean strength.]

American troops (enlisted men).	Mean strength.	Admitted.			Discharged on certifi- cate of disability.			Died.			Total losses.			Con- stantly non- effect- ive.	Days treated.	
		Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.		Each soldier.	Each case.
United States.....	61,410	745,38	612,52	132,86	16,74	14,59	2,15	5,13	2,80	2,33	21,87	17,39	4,48	30,67	11,23	15,06
.....	63,725	704,01	564,40	139,61	13,60	11,93	1,67	5,40	2,90	2,41	19,00	14,92	4,08	25,74	9,39	13,34
Mexican punitive expedition.....	8,049	810,16	687,54	122,62	18,80	18,19	3,73	7,58	2,14	5,47	26,47	17,27	9,20	15,62	5,72	7,06
Alaska.....	745	344,97	244,30	100,67	21,48	18,79	2,68	6,71	1,34	5,37	28,19	20,13	8,06	9,23	3,38	9,79
.....	763	336,63	207,51	89,12	11,80	11,80	.....	2,62	1,31	1,31	14,12	13,11	1,01	8,91	3,25	8,41
Philippine Islands.....	11,680	538,60	714,42	124,18	14,42	13,13	1,19	4,49	2,76	1,73	18,91	15,89	3,02	27,88	10,21	12,17
.....	11,824	590,45	871,05	119,40	23,22	22,04	1,18	2,86	1,51	1,35	26,08	23,55	2,53	29,15	10,64	10,74
China.....	1,821	860,24	763,34	96,89	13,63	13,63	.....	10,60	8,33	2,27	24,23	21,96	2,27	31,31	11,46	12,87
.....	1,835	1,462,17	1,349,81	112,36	9,74	8,99	.....	4,49	3,00	1,50	14,23	11,99	2,26	35,00	12,77	8,74
Hawaii.....	8,476	514,51	405,60	109,01	15,57	13,69	1,89	4,84	1,66	3,19	20,41	15,34	5,08	19,22	7,03	13,67
.....	8,572	563,94	440,85	123,09	10,92	9,79	1,13	3,04	2,26	3,79	13,96	12,04	1,92	20,44	7,46	13,11
Canal Zone.....	6,783	849,63	703,08	146,54	18,43	16,36	2,06	3,99	1,57	2,42	22,42	17,83	4,48	28,15	10,30	12,13
.....	6,721	871,00	719,10	151,90	13,03	12,01	1,02	2,37	1,18	1,18	15,40	13,19	2,20	26,00	9,49	10,89
Army transports.....	6,822	714,11	681,27	32,85	.....	.....	.....	.....	.....	.....	.....	.....	.....	50,03	15,31	25,64
.....	1,312	572,41	547,26	25,15	.....	.....	.....	3,05	2,29	.76	3,05	2,29	.76	38,57	14,06	24,59
Total.....	99,186	747,59	619,23	128,36	16,52	14,42	2,11	5,21	2,60	2,60	21,73	17,02	4,71	27,98	10,24	13,70
.....	93,262	744,59	610,32	134,27	14,26	12,79	1,47	4,60	2,60	2,01	18,86	15,39	3,48	25,88	9,44	12,68
Regular Army/American troops, from 1905 to 1914.....	69,741	976,32	795,47	180,85	16,81	15,04	1,77	5,17	2,85	2,82	21,98	17,99	4,09	36,36	13,28	13,60
.....	66,965	1,037,70	824,97	212,73	12,57	12,57	.....	4,19	3,14	1,05	16,76	15,71	1,05	25,35	9,26	8,94
Porto Rican troops.....	831	555,07	499,27	55,80	7,34	7,34	.....	4,41	2,94	1,47	11,75	10,28	1,47	22,78	8,31	14,98
.....	681	555,07	499,27	55,80	6,99	6,45	.54	2,69	2,33	.86	9,68	8,78	.90	14,58	5,34	11,06
Philippine Scouts.....	5,679	482,17	407,06	75,10	11,44	10,53	.91	2,54	1,63	.91	13,98	12,16	1,82	15,68	5,72	9,97
.....	5,605	573,84	482,65	91,19	11,44	10,53	.91	2,54	1,63	.91	13,98	12,16	1,82	15,68	5,72	9,97

TABLE No. 3A.—*Numerical view of the effect of disease and injury on the Army, serving at home and abroad, in the year 1916, compared with corresponding data for the year 1915, by countries, (officers and enlisted men, Porto Ricans and Philippine Scouts).*

PROPORTIONATE NUMBERS (ENTIRE ARMY).

[Ratio per 1,000 of mean strength.]

The Army, officers and enlisted men, including Porto Ricans and Philippine Scouts.	Mean strength.	Admitted.			Discharged on certificate of disability.			Died.			Total losses.			Noneffective from sickness.		
		Total.	Dis- ease.	Injury.	Total.	Dis- ease.	Injury.	Total.	Dis- ease.	Injury.	Total.	Dis- ease.	Injury.	Con- stantly nonef- fective.	Days treated.	Each case.
United States.....	1916	64,466	733.29	604.30	128.98	16.74	14.59	2.15	5.37	2.99	2.38	17.58	4.53	30.58	11.19	15.26
.....	1915	66,789	696.04	559.43	136.61	13.60	11.03	1.67	5.30	2.95	2.35	18.90	4.02	25.77	9.41	13.51
Mexican punitive expedition.....	1916	8,843	310.26	688.00	122.26	18.89	15.16	3.73	7.79	2.28	5.51	14.88	4.02	15.41	5.64	6.96
Alaska.....	1916	8,770	338.96	241.56	97.40	21.48	18.79	2.68	6.49	1.30	5.16	27.97	7.87	9.01	3.36	9.73
.....	1915	787	378.65	292.24	86.40	11.80	11.06	.....	2.54	1.27	1.27	14.34	13.07	8.71	3.18	8.40
Philippine Islands.....	1916	17,823	715.87	608.76	107.11	12.01	10.96	1.05	3.71	2.49	1.22	15.72	13.45	23.27	8.62	11.90
.....	1915	18,005	853.65	743.46	110.19	19.49	18.40	1.09	2.77	1.61	1.16	22.28	20.01	23.25	9.02	10.57
China.....	1916	1,369	874.36	778.67	95.69	13.15	13.15	.....	10.23	8.04	2.19	23.28	21.19	23.25	11.19	12.80
.....	1915	1,378	438.32	326.74	109.58	9.74	8.99	.....	4.35	2.90	1.45	14.06	11.89	23.25	11.19	8.74
Hawaii.....	1916	8,789	511.55	403.35	106.20	15.57	13.69	1.89	4.99	1.82	3.18	20.56	15.51	5.07	6.96	13.67
.....	1915	8,876	568.50	441.30	127.20	10.92	9.79	1.13	3.26	2.17	1.09	14.18	11.94	20.24	7.39	12.99
Canal Zone.....	1916	7,023	838.67	694.57	144.10	18.43	16.36	2.06	3.99	1.57	2.42	22.42	17.93	4.48	10.08	12.02
.....	1915	5,903	859.22	706.81	149.41	13.03	12.01	1.02	2.46	1.31	1.15	15.49	13.32	27.55	9.35	10.99
Porto Ricans.....	1916	1,022.20	942.48	79.72	12.57	7.34	7.34	.....	4.04	3.03	1.01	16.61	15.60	24.91	9.12	8.92
.....	1915	719	552.16	496.52	55.63	.....	.....	.....	4.17	2.78	1.39	11.51	10.12	22.36	8.16	14.78
Transports.....	1916	880	671.69	689.77	31.82	.....	.....	.....	2.89	2.17	.....	2.89	2.17	36.32	13.49	24.71
.....	1915	1,385	545.85	520.58	25.27	.....	.....	.....	2.89	2.17	.....	2.89	2.17	36.32	13.49	24.71
The Army.....	1916	110,454	726.45	604.04	122.40	15.98	13.97	2.01	5.19	2.71	2.48	31.17	16.68	26.99	9.91	13.65
.....	1915	103,842	726.19	567.02	129.16	14.06	12.63	1.43	4.45	2.53	1.92	18.51	15.16	25.22	9.20	12.67

INFLUENCE OF ARMS OF SERVICE.

The admission rate for disease in 1916 was highest for the Field Artillery, being 908.60, while the Ordnance Corps had the lowest, 532.26 per 1,000.

The death rate was highest in the Engineer Corps, 8.25, and lowest in the Signal Corps, 3.14, the Field Artillery being next to the lowest with 3.94 per 1,000.

TABLE No. 4.—*Influence of disease on enlisted American troops of the Army, by arms of service, for the year 1916.*

Arms of service.	Mean strength.	Admitted.	Discharged on certificate of disability.	Died.	Constantly non-effective.	Ratio per 1,000 of mean strength.			
						Admitted.	Discharged on certificate of disability.	Died.	Constantly non-effective.
Infantry.....	35,458	26,272	637	173	991.53	740.93	17.96	4.88	27.96
Cavalry.....	16,070	13,993	245	120	523.58	870.75	15.25	7.47	32.58
Coast Artillery.....	18,630	12,432	231	76	464.77	667.31	15.03	4.08	24.95
Field Artillery.....	6,094	5,637	95	24	197.12	908.60	15.50	3.04	32.35
Engineers.....	1,939	1,582	52	16	77.74	815.88	26.82	8.25	40.09
Ordnance.....	744	806	4	4	13.89	532.26	5.38	5.38	18.67
Signal Corps.....	1,590	892	24	5	34.91	561.01	15.09	2.14	21.96
Hospital Corps.....	5,038	3,706	114	26	129.01	735.90	22.64	5.16	25.62
Others.....	13,625	9,340	187	72	343.00	685.50	13.72	5.28	25.17
Total.....	99,186	74,150	1,639	516	2,775.55	747.59	16.52	5.20	27.98

The following table shows the relative frequency of the occurrence of the more important diseases for the various arms of service, figure 1 indicating the highest ratio and figure 8 the lowest in each case for each arm:

TABLE No. 5.—*Relative frequency of occurrence of certain important diseases, by arm of service, in the Army, among American troops, enlisted men, year 1916.*

Arms of service.	Most important diseases.									
	Veneral.	Tonsillitis and pharyngitis.	Diarrhea and enteritis.	Malaria.	Bronchitis.	Alcoholism.	Rheumatism (articular).	Dysentery.	Tuberculosis.	Typhoid fever.
Infantry.....	1	4	3	4	7	6	3	6	2	5
Cavalry.....	4	3	1	2	4	3	1	3	2	1
Coast Artillery.....	6	5	7	5	3	3	2	8	5	5
Field Artillery.....	3	1	2	2	2	7	7	4	6	4
Engineers.....	2	7	5	1	6	5	6	5	4	7
Ordnance.....	8	8	8	8	8	2	4	7	.....	6
Signal Corps.....	7	6	6	7	5	4	8	1	3	8
Hospital Corps.....	5	2	4	6	1	1	5	2	1	2
Injuries.....										

Chart I.—United States and Philippine Islands. Officers and American and native troops.

[Noneffective rates for special diseases, year 1916.]

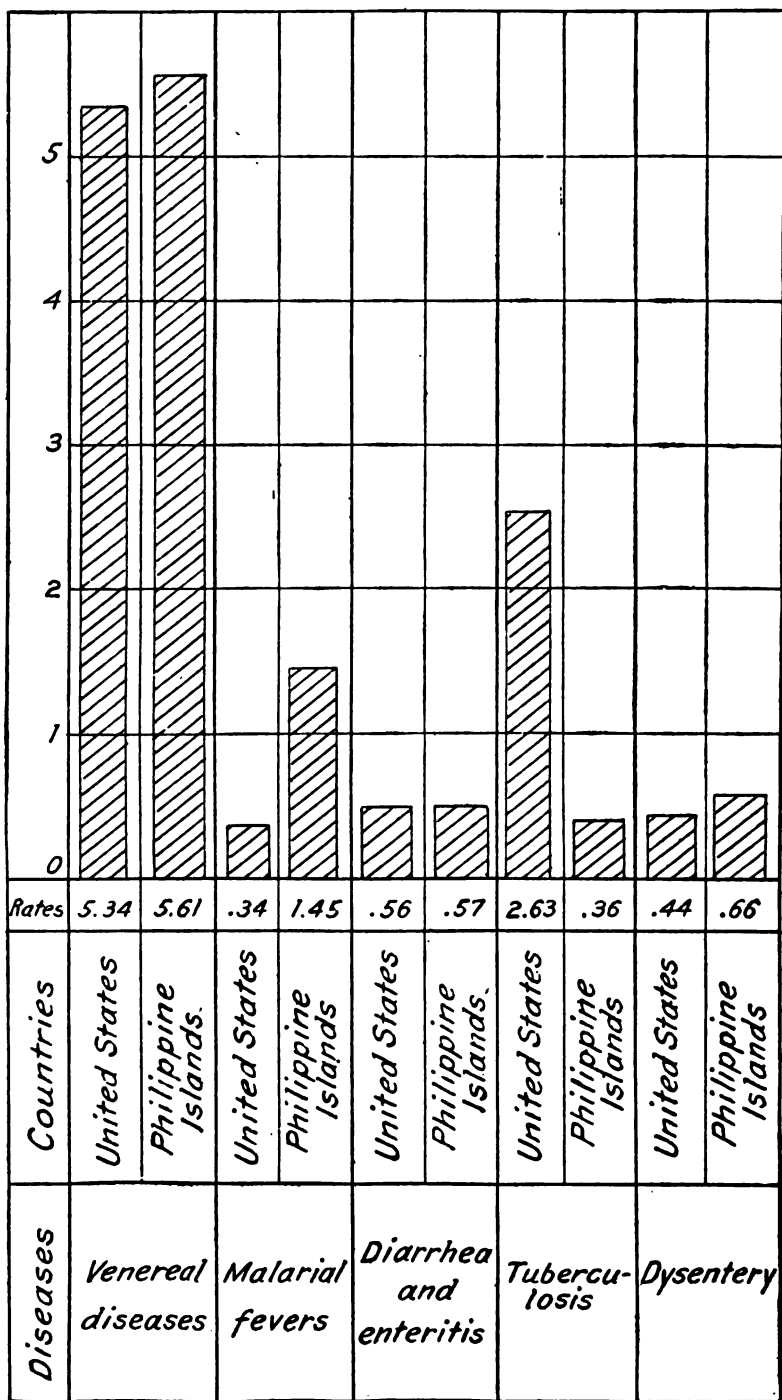


Chart F.—Army. Officers and American and native troops.

[Admission rates for malarial fevers, years 1906-1916.]

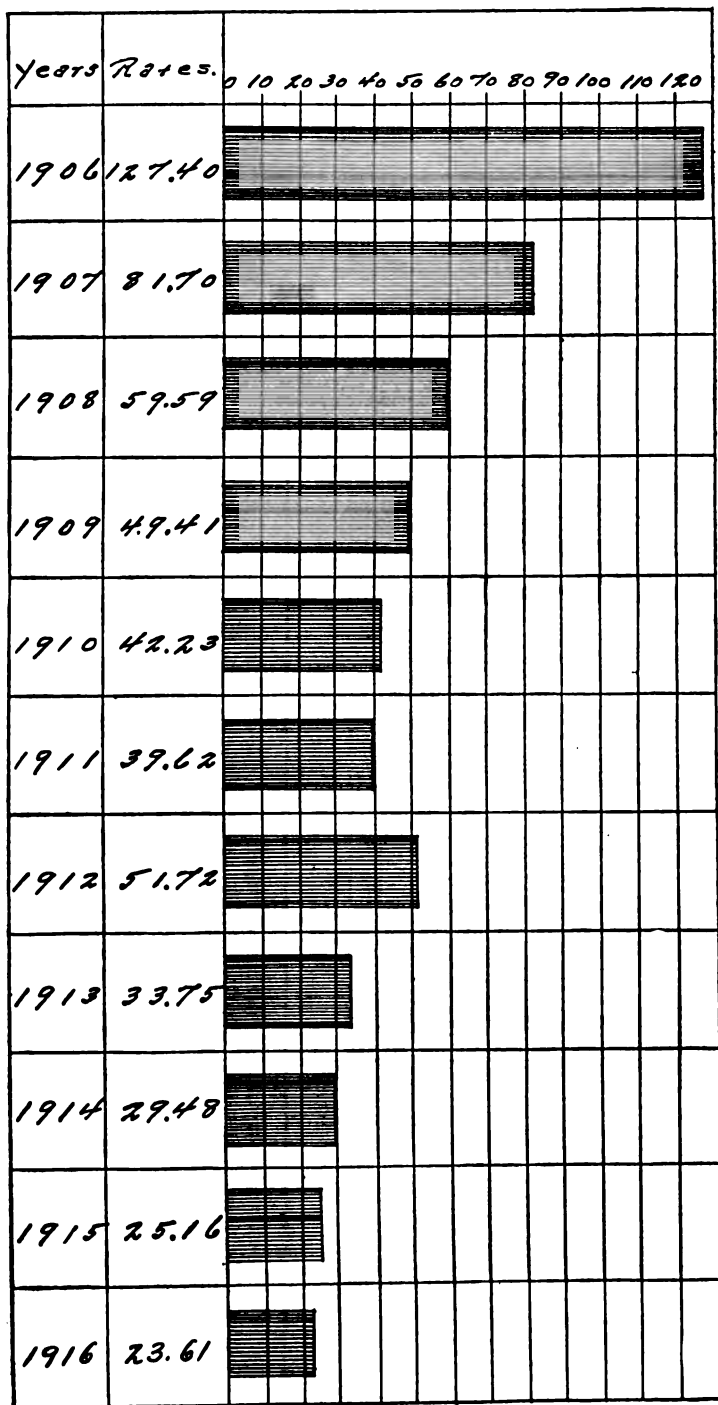


Chart K.—Army. Officers and American and native troops.

[Noneffective rates for malarial fevers, years 1906-1916.]

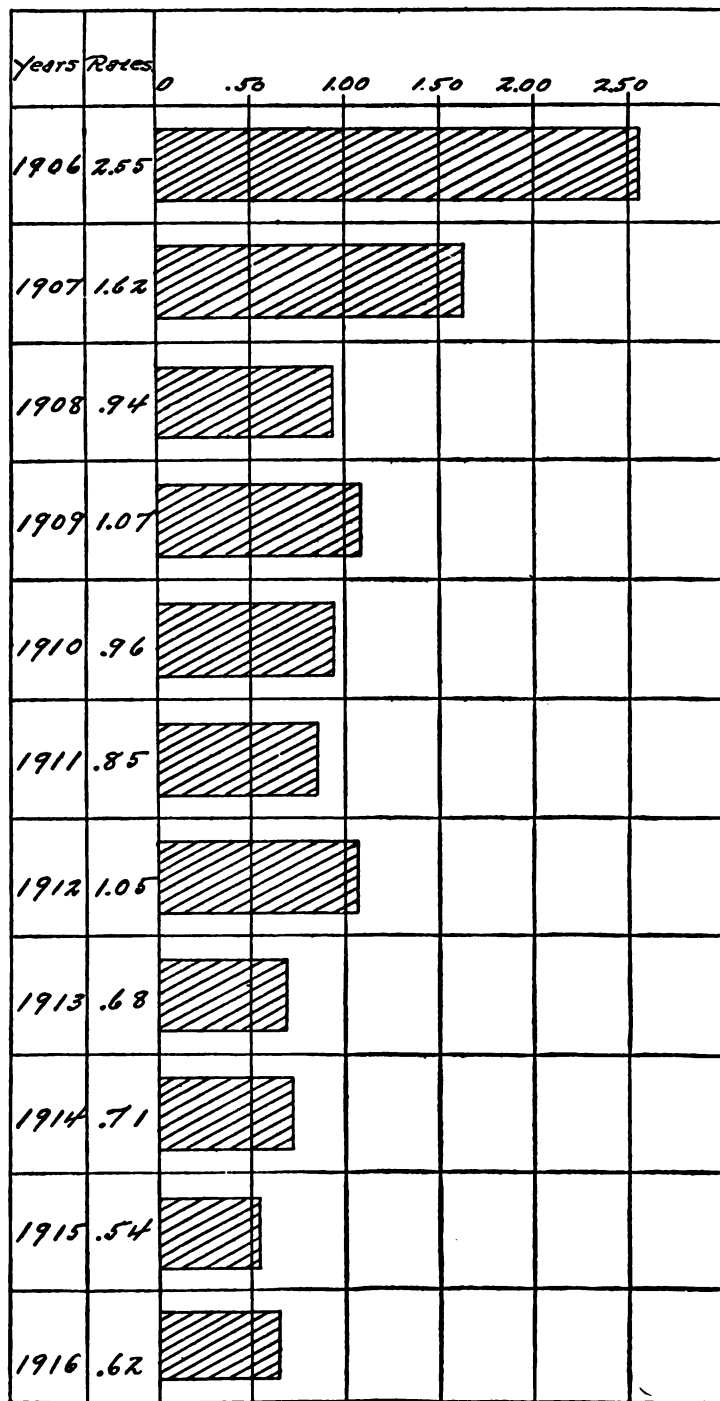
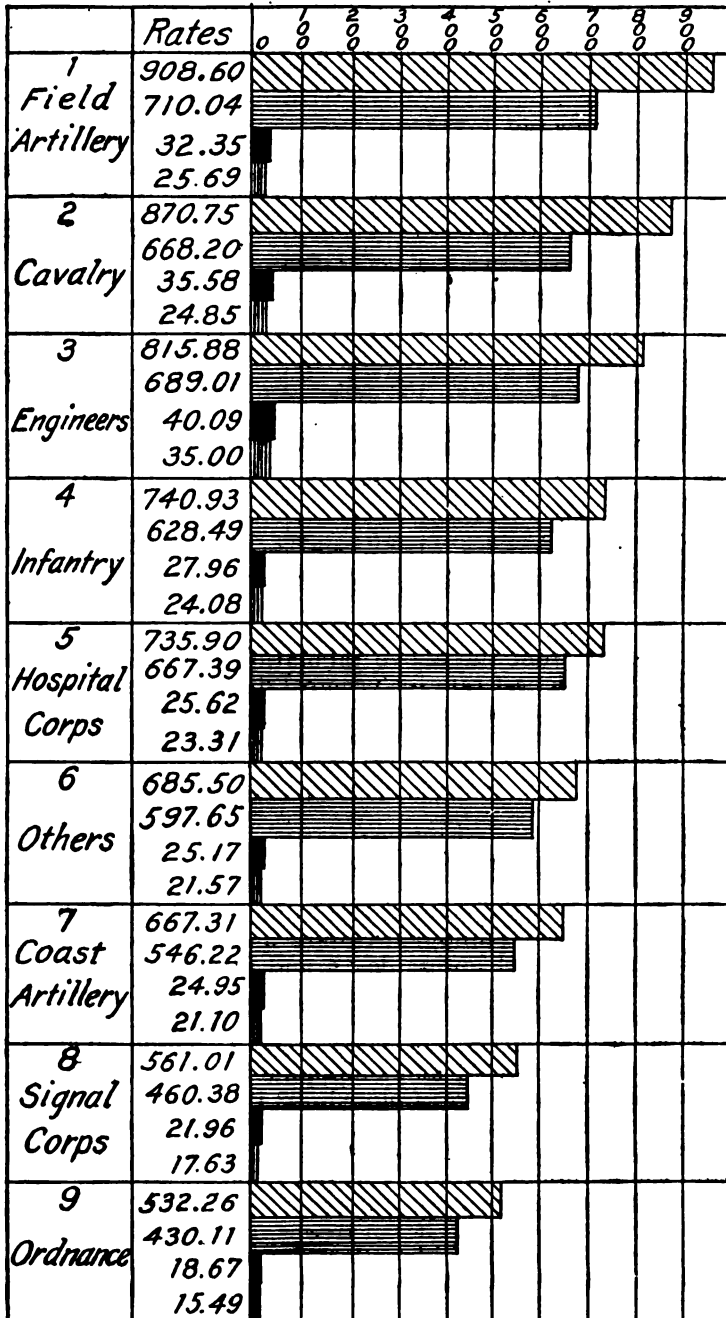


Chart L.—Army. Total American enlisted men.

[Admission and noneffective rates, all causes and disease, by arms of service, year 1916.]



Admissions, Total.



Non-effective, Total.



Admissions, Disease.



Non-effective, Disease



The following tabulation exhibits the admission and noneffective rates for the different races for the principal diseases causing the greatest nonefficiency:

Diseases causing the greatest amount of nonefficiency in the Army, arranged in accordance therewith, together with their admission rates, in ratios per 1,000 of mean strength.

	Army, total enlisted.		White.		Colored.		Porto Ricans.		Philippine Scouts.	
	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.
Venereal diseases....	5.41	99.30	7.70	100.75	8.48	147.10	5.02	83.77	1.79	29.93
Tuberculosis.....	1.70	3.45	2.40	3.41	3.27	4.32	.39	5.24	.36	3.05
Mental alienation....	.79	3.55	1.15	3.70	1.08	4.14	.19	1.05	.12	.90
Appendicitis and typhilitis.....	.67	9.42	1.02	10.14	.46	6.11	.10	1.05	.16	2.15
Bronchitis.....	.65	33.64	.94	31.66	.41	20.86	.27	8.38	.74	33.52
Malaria.....	.63	24.25	.84	22.94	.50	18.88	1.67	72.25	1.14	43.38
Diarrhea and enteritis.....	.62	48.79	.91	49.00	.57	63.66	.86	51.31	.33	29.93
Tonsillitis, acute follicular.....	.57	39.80	.85	41.82	.70	45.67	.17	10.47	.07	5.02
Measles.....	.53	12.48	.84	13.98	.03	.90	-----	-----	.06	.90
Hernia.....	.46	4.63	.69	4.97	.51	3.78	-----	-----	.05	.54
Influenza.....	.44	29.75	.63	30.27	.16	8.27	3.43	255.50	.06	3.76
Acute abscess and cellulitis.....	.44	16.03	.60	15.69	.45	11.14	.67	38.74	.64	22.76
Dysentery.....	.44	6.18	.62	6.17	.65	7.73	.15	5.24	.22	4.84
Articular rheumatism, acute and chronic.....	.36	5.56	.50	5.76	.63	4.68	.38	4.19	.16	3.41

It will be seen from the above tabulation that the white troops have next to the highest rate for venereal diseases, 100.75 per 1,000; the colored troops the highest, with 147.10, while the native troops (Porto Ricans and Philippine Scouts) had the lowest rate, 83.77 and 29.93, respectively.

INFLUENCE OF RACE.

[See Tables 67 and 75.]

Table No. 67 shows that the Porto Rican troops had the highest admission rate, while the colored troops had the highest death and discharge rates. The Philippine Scouts had the lowest admission and discharge rate, and lowest death and noneffective rates. The admission rates were: White troops, 749.59; colored, 713.90; Philippine Scouts, 482.17; and Porto Ricans, 1,037.70.

The constantly noneffective rates were: Colored, 32.03; white, 39.17; Porto Ricans, 25.35; and Philippine Scouts, 14.58 per 1,000.

The discharge rates were: Colored, 22.12; white, 16.19; Philippine Scouts, 6.99; and the Porto Ricans, 12.57 per 1,000.

The death rates were: Colored, 7.73; white, 5.06; Porto Ricans, 4.19; and the Philippine Scouts, 2.69 per 1,000.

The rates for total losses were: Colored, 29.85; white, 21.25; Philippine Scouts, 9.68; and Porto Rican troops, 16.76 per 1,000.

The average number of days lost for each case treated was: Porto Ricans, 8.94; colored, 16.42; white, 13.54; and Philippine Scouts, 11.06 per 1,000.

COMPARISON WITH FOREIGN ARMIES.

As in previous years it has been customary to make an effort to compare the health conditions in the United States with the same conditions in the armies of Great Britain, the continental powers, and Japan. Owing to the unusual conditions which have existed throughout the calendar year 1916 in Europe, no effort at comparison is made in this report.

SURGICAL OPERATIONS.

Table No. 66 shows the principal surgical operations performed by medical officers upon the personnel of the Army. Operations upon families of officers and enlisted men and other civilians who are entitled to treatment at Army hospitals at the various posts are not included. During the year 1916 there were 10,129 operations performed, of which 10,037 were successful, 31 partially successful, and 9 failures; 52 deaths resulted. Of the anesthetics used, ether was more prominent, being used in 4,947 cases, chloroform in 99, local anesthesia in 3,968, chloroform and ether or gas in 97, and other general anesthetics in 318 cases. One thousand two hundred and thirty-seven appendectomies were performed, 13 resulting in death; 643 herniotomies, and 9 operations for goiter.

UNITED STATES (CONTINENTAL) EXCLUSIVE OF ALASKA.

ADMISSION RATE.

Cases only are counted; readmissions for the same illness are omitted in counting cases. Table No 81 shows case admissions and total admissions for enlisted American troops of the Army for the United States and American troops, Philippine Islands, 1904 to 1911, inclusive.

Admission rates for disease and injuries and total noneffective rate for the United States, continental (excluding Alaska), years 1911-1916 (enlisted American troops).

Year.	Ratio per 1,000 of mean strength.					
	Admission rate.			Non-effective rate, all causes.	Highest noneffective rate for disease.	
	All causes.	For disease.	External causes.		Venereal.	Tuberculo sis.
1916.....	745.38	612.52	132.86	30.67	5.58	2.64
1915.....	704.01	564.49	139.52	25.74	3.99	2.33
1914.....	629.84	498.83	131.01	23.37	3.75	2.23
1913.....	619.90	487.94	131.96	22.94	3.58	2.34
1912.....	738.70	596.94	141.76	27.15	5.96	1.66
1911.....	837.00	680.00	157.00	31.40	8.83	1.68

The admission rate for 1916, 745.38, is slightly higher than for the preceding year. This rate is compared with the rate for five years preceding in the total above. The noneffective is higher than the average for preceding five years.

The mean strength of all troops serving in the United States, both Regulars and National Guard, year 1916, was 130,394. The case rate for these troops was 911.72 for all causes, as against 704.01 for Regulars in 1915. The noneffective rate was 25.07; the discharge rate was 15.58 and the death rate was 4.21, as against 25.74, 13.60, and 5.40, respectively, for Regulars in the previous year.

DISCHARGES FOR DISABILITY.

The disability-discharge rate for the United States for 1916 was 16.76 per 1,000, as compared with 13.60 for 1915, 14.82 for 1914, 13.45 for 1913, 14.48 for 1912, and 15 for 1911. It will be noted that the rate for 1916 is considerably higher than for 1915.

TABLE NO. 7.—Discharges for disability, year 1916, United States continental (excluding Alaska).

Causes of discharge.	Number discharged.	Percentage of total discharges for diseases or external causes.	Discharges for disability.				
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.	
				Contracted before enlistment.	Contracted after enlistment.	In line of duty.	Not in line of duty.
DISEASES.							
Nervous system and organs of special sense.	308	34.34	56	231	21	2	50
Nervous system.	261	29.10	39	201	21	2	46
Mental alienation.	164	18.28	15	132	17	1	23
Dementia precox.	94	10.48	9	82	3	1	13
Defective mental development.	23	2.56		23			3
General paralysis of the insane.	14	1.56			14		
Psychosis, manic depressive.	6	.67	3	3			
Psychosis, traumatic.	2	.22	1	1			
Psychasthenia.	1	.11		1			
All other forms.	24	2.68	2	22			7
Epilepsy.	56	6.24	3	53		1	20
Others of the nervous system.	41	4.57	21	16	4		3
Hysteria.	10	1.11		10			2
Neuritis.	9	1.00	6	3			1
Neurasthenia.	8	.89	6	2			
Others.	14	1.56	9	1	4		
Diseases of the eye.	25	2.79	8	17			1
Amblyopia.	5	.56	1	4			
Retinitis.	4	.45	3	1			
Astigmatism.	3	.33	1	2			
Conjunctivitis, chronic.	2	.22	1	1			
Trachoma.	2	.22		2			
Thoroditis, chronic.	2	.22		2			1
Astenopia.	1	.11		1			
Cataract.	1	.11	1				
Optic neuritis.	1	.11	1				
Others of the eye.	4	.45		4			
Diseases of the ear.	22	2.45	9	13			
Otitis media.	19	2.12	8	11			3
Others of the ear.	3	.33	1	2			
General diseases.	268	29.88	122	78	68	4	19
Tuberculosis.	119	13.27	99	20		3	5
Of the lungs.	114	12.71	94	20		1	5
Of other organs.	5	.56	5			2	
Venereal diseases.	100	11.15		41	59		6
Gonorrhea and results.	60	6.69		22	38		3
Arthritis.	47	5.24		18	29		3
Other infections.	13	1.45		4	9		
Syphilis.	40	4.46		19	21		3
Tertiary.	26	2.90		11	15		1
Secondary.	12	1.34		6	6		1
Hereditary.	1	.11		1			
Period undetermined.	1	.11		1			1
Articular rheumatism.	11	1.23	6	5		1	1
Chronic.	9	1.00	4	5			1
Acute.	2	.22	2			1	
Exophthalmic goiter.	9	1.00	3	6			1
Chronic alcoholism.	9	1.00		1	8		1
Diabetes.	7	.78	5	2			1
Dysentery, chronic, entamoebic.	4	.45	2	2			2
Cancer.	3	.33	3				
Measles.	2	.22	2				2
Leukemia.	1	.11	1				
Drug habit (morphine).	1	.11			1		
Obesity.	1	.11		1			
Diabetes insipidus.	1	.11	1				
Diseases of the bones and of the organs of locomotion.	129	14.38	31	98			7
Flat foot.	87	9.70	5	82			5
Diseases of the joints.	21	2.34	16	5			1
Arthritis.	14	1.56	11	3			1
Synovitis.	7	.75	3	4			
Ankylosis.	3	.33	2	1			
Diseases of the bones.	6	.67	3	3			1
Periostitis and osteitis.	4	.45	2	2			
Osteoma.	1	.11		1			
Osteomyelitis.	1	.11	1				

TABLE NO. 7.—Discharges for disability, year 1916, United States continental (excluding Alaska)—Continued.

Causes of discharge.	Number discharged.	Percentage of total discharges for diseases or external causes.	Discharges for disability.			
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.
				Contracted before enlistment.	Contracted after enlistment.	
					In line of duty.	Not in line of duty.
DISEASES—continued.						
Diseases of the bones and of the organs of locomotion—Continued.						
Others of the order.....	15	1.67	7	8		
Hallux valgus.....	4	.45	1	3		
All others.....	11	1.23	6	5		
Diseases of the digestive system.....	60	6.69	32	26	2	
Hernia.....	28	3.12	16	11	1	
Inguinal.....	27	3.01	15	11	1	
Ventral.....	1	.11	1			2
Abdominal adhesions following operations.....	7	.78	3	4		
Gastritis, chronic.....	5	.56	1	4		1
Appendicitis, chronic.....	3	.33	1	2		1
Others of the stomach.....	3	.33	3			
Ulcer of the stomach, chronic.....	2	.22	2			
Gastro enteritis, chronic.....	2	.22	1	1		
Sprue.....	2	.22	1	1		
Cholecystitis, chronic.....	2	.22	1	1		
Others of the order.....	6	.67	3	2	1	2
Diseases of the circulatory system.....	55	6.13	15	40		6
Organic heart disease.....	40	4.46	13	27		5
Valvular disease.....	22	2.45	6	16		5
Endocarditis, chronic.....	7	.78	3	4		
Cardiac hypertrophy.....	3	.33	1	2		
Myocarditis, chronic.....	3	.33	2	1		
Cardiac dilatation.....	2	.22	1	1		
Others.....	3	.33		3		
Diseases of the veins.....	6	.67		6		
Varicose veins.....	4	.45		4		
Hemorrhoids.....	1	.11		1		
Varicocele.....	1	.11		1		
Diseases of the arteries.....	2	.22		2		
Aneurism.....	1	.11		1		
Arteriosclerosis.....	1	.11		1		
Pericarditis, chronic.....	1	.11		1		1
Endocarditis, chronic.....	1	.11	1			
Angina pectoris.....	1	.11	1			
All others.....	4	.45		4		
Diseases of the genito-urinary system.....	41	4.57	10	31		7
Enuresis, chronic.....	22	2.45		22		4
Nephritis.....	9	1.00	6	3		
Chronic parenchymatous.....	6	.67	4	2		
Chronic interstitial.....	3	.33	2	1		
Pyelitis.....	3	.33	2	1		
Pyelonephritis, chronic.....	3	.33	2	1		1
Nephrolithiasis.....	3	.33		3		2
Orchitis (nonvenereal).....	1	.11		1		
Diseases of the respiratory system.....	28	3.12	14	14		3
Asthma.....	10	1.11	3	7		1
Bronchitis, chronic.....	5	.56	3	2		
Golter.....	4	.45	1	3		
Rhinitis, chronic, atrophic.....	2	.22	1	1		
Pneumonia, lobar.....	2	.22	2			2
Pleurisy (acute fibrinous, 1; chronic fibrinous, 1).....	2	.22	2			
Laryngitis, chronic.....	1	.11	1			
Thyroiditis, chronic.....	1	.11		1		
Pulmonary emphysema.....	1	.11	1			
Diseases of the skin and cellular tissues.....	6	.67	3	3		
Corns.....	2	.22	1	1		
Erythromelalgia.....	1	.11	1			
Bromhidrosis.....	1	.11		1		
Hyperidrosis.....	1	.11		1		
Painful scar from abscess.....	1	.11	1			
Congenital malformations.....	2	.22		2		
Total for disease.....	897	100.00	283	523	91	92

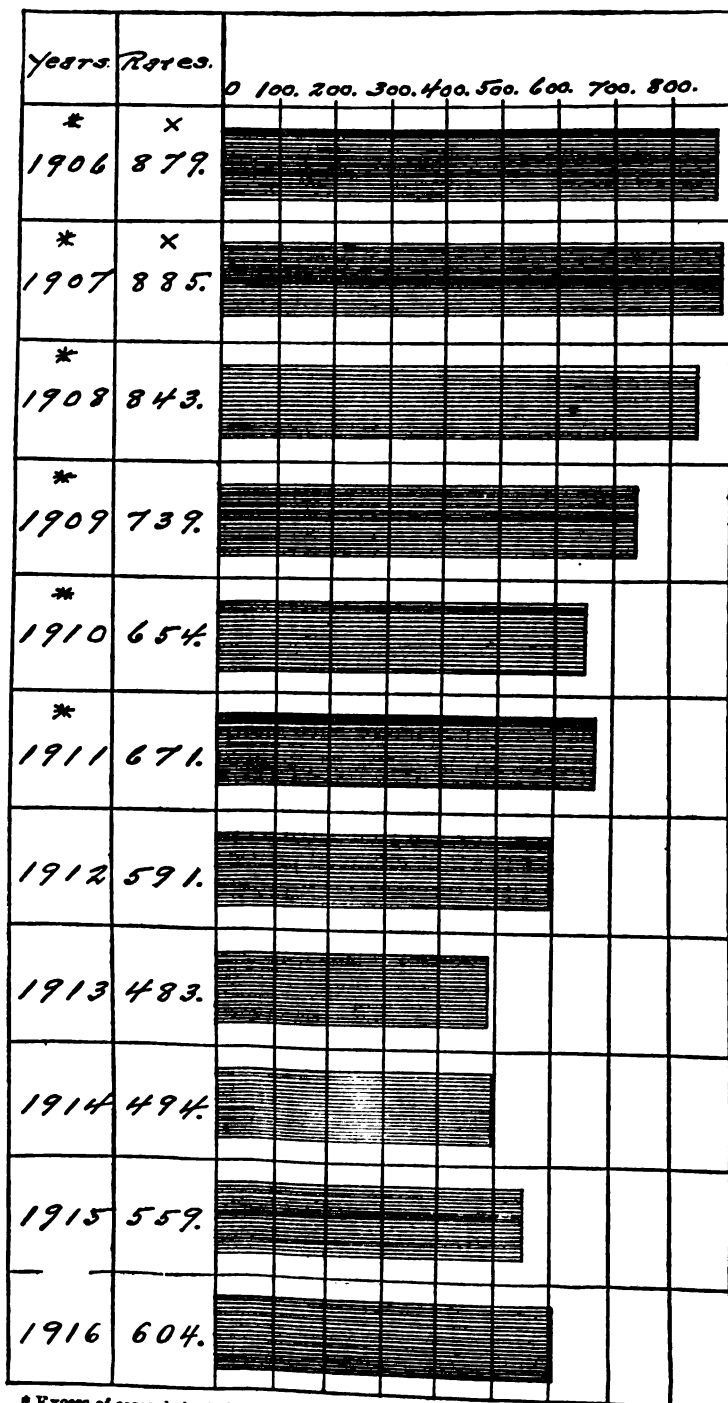
TABLE NO. 7.—Discharges for disability, year 1916, United States continental (excluding Alaska)—Continued.

Causes of discharge.	Number discharged.	Per-centage of total discharges for diseases or external causes.	Discharges for disability.				
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.	
				Contracted before enlistment.	Contracted after enlistment.	In line of duty.	Not in line of duty.
EXTERNAL CAUSES.							
Gunshot wounds.	37	28.03	25		12	1	
Fractures.	32	24.24	29		3	2	
Secondary results of injuries.	25	18.94		25			
Contusions.	7	5.30	7				
Incised wounds.	6	4.55	4		2		
Dislocations.	6	4.55	6				
Sprains.	5	3.79	5			1	
Crushing.	4	3.03	2		2		
Lacerated wounds.	4	3.03	4				
Punctured wounds.	2	1.52	1		1		
Concussion.	2	1.52	2				
Lightning stroke.	1	.76	1				
Contused wound.	1	.76	1				
Total for external causes.	132	100.00	87	25	20	4	
Total for disease.	897	87.17	283	523	91	6	92
Total for external causes.	132	12.83	87	25	20	4	
Grand total.	1,029	100.00	370	548	111	10	92

The principal causes of discharge with the percentage of the total number of discharges for diseases were: Mental alienation, 18.28; tuberculosis, 13.27; venereal diseases, 11.15; flat foot, 9.70; disease of the digestive system 6.69; and epilepsy, 6.24. The order of frequency was the same for the year 1915 as in the years 1914, 1913, and 1912, except that flat foot changed places with venereal diseases, and in addition for 1916 diseases of the digestive system changed places with epilepsy.

Chart M.—United States. Officers and men.

[Admission rates for disease, years 1906-1916.]



* Excess of cases deducted to correspond with years preceding 1906 and 1912 to 1916.
 x Enlisted men, officers not included.

Chart N.—United States. Enlisted men.

[Discharge rates, all causes, years 1906-1916.]

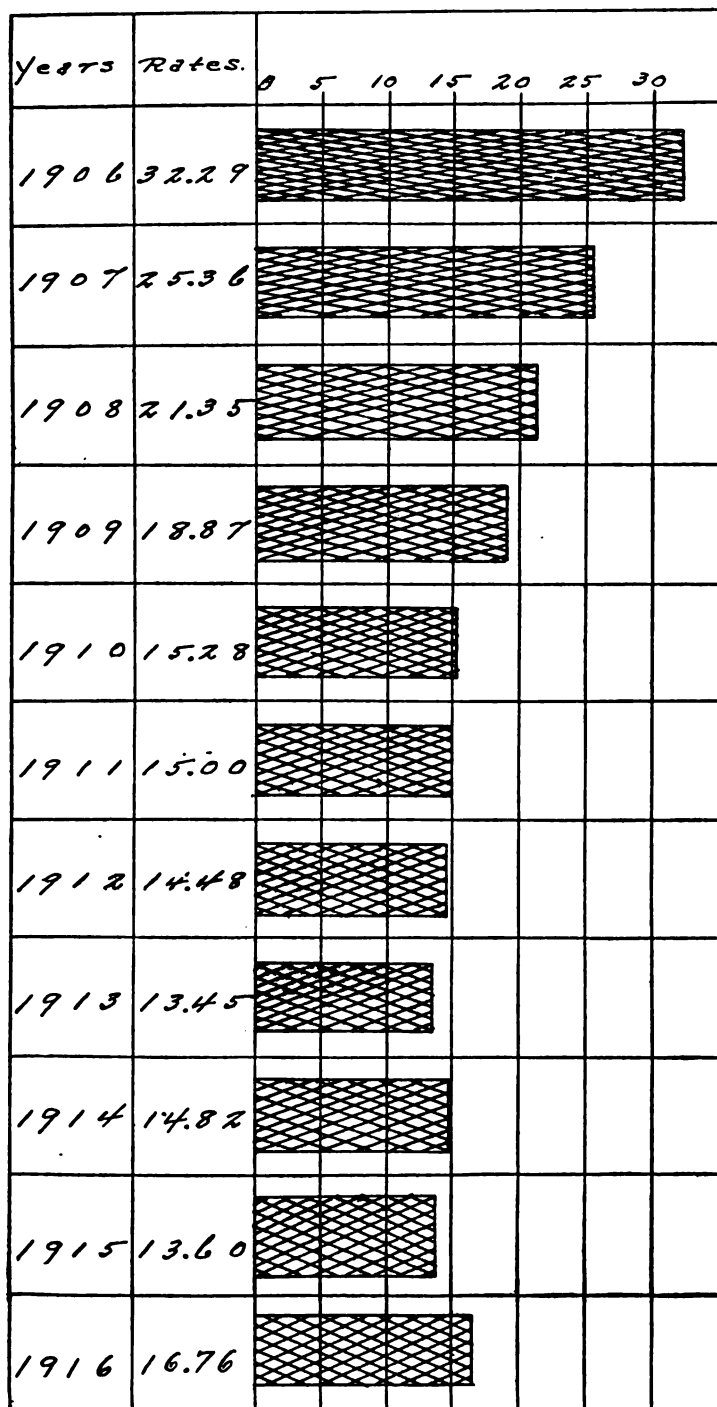
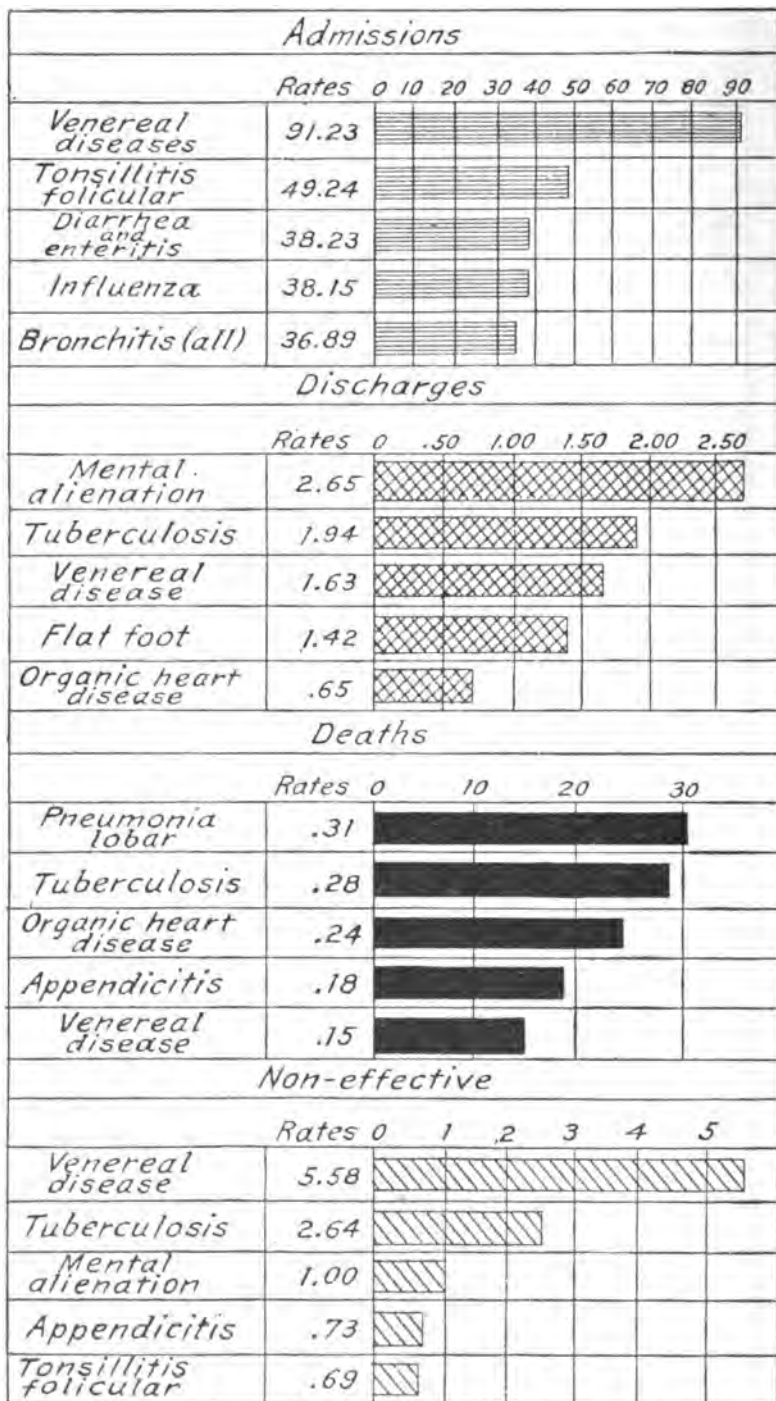


Chart O.—United States. Enlisted men.

[Admission, discharge, death, and noneffective rates for diseases having highest rates, year 1916.]



DEATHS.

The death rate for diseases for the United States enlisted men was 2.80 per 1,000, as compared with 2.99 in 1915 and 2.52 in 1914. That for external causes was 2.33 per 1,000 in 1916, as compared with 2.41 in 1915 and 2.30 in 1914. The total for diseases and external causes was 5.13 in 1916, as compared with 5.40 in 1915 and 4.82 in 1914. The total number of deaths in 1916 was 315; of this number 172 were due to disease and 143 to external causes. Deaths as well as discharges which occurred in the United States among those who have been invalided home from their commands in foreign service have been changed to the country where such commands were stationed. Tuberculosis caused 17 deaths in 1916, 18 in 1915, and 29 in 1914; measles 9 in 1916, 20 in 1915, and 8 in 1914; pneumonia (lobar) 19 in 1916, 28 in 1915, and 15 in 1914; and appendicitis 11 in 1916, 10 in 1915, and 9 in 1914. There were 35 suicidal deaths in 1916, 40 in 1915, and 37 in 1914; 92 accidental deaths, 21 of which were by drowning, 17 by crushing, and 18 by firearms in 1916, as compared with 104 deaths in 1915 and 85 in 1914.

The following table shows the whole number of deaths occurring among both officers and enlisted men, the difference accounting for officers' deaths, which are used above, in order that accurate comparison could be made with statements from last year's report:

TABLE NO. 8.—Deaths among officers and enlisted troops serving in the United States continental (excluding Alaska), year 1916.

Causes of death.	Number.	Ratio per 1,000 of—	
		Mean strength.	Death from disease or external causes.
DISEASES.			
Pneumonia.....	23	0.35	118.56
Tuberculosis.....	19	.29	97.94
Pulmonary.....	16	.25	82.48
Meningitis, tubercular.....	3	.05	15.46
Organic heart disease.....	15	.23	77.32
Cardiac dilatation.....	7	.11	36.08
Endocarditis, chronic.....	4	.06	20.62
Valvular disease.....	3	.05	15.46
Myocarditis, chronic.....	1	.02	5.15
Appendicitis.....	13	.20	67.01
Measles.....	9	.14	46.39
Epidemic cerebrospinal meningitis.....	9	.14	46.39
Broncho-pneumonia.....	9	.14	46.39
Nephritis, chronic.....	9	.14	46.39
Parenchymatous, chronic.....	5	.08	25.77
Interstitial, chronic.....	4	.06	20.62
Veneral diseases.....	9	.14	46.39
Syphilis (secondary, 1; test, 7).....	8	.12	41.24
Gonorrheal endocarditis.....	1	.02	5.15
Cancer.....	8	.12	41.24
Dysentery (entamoebic, 6; catarrhal, 1).....	7	.11	36.08
Septicemia.....	6	.09	30.93
Nephritis, acute.....	5	.08	25.77
Typhoid fever.....	3	.05	15.46
Apoplexy.....	3	.05	15.46
Aneurism.....	3	.05	15.46
Abscess of the liver.....	3	.05	15.46
Peritonitis.....	3	.05	15.46
Scarlet fever.....	2	.03	10.31
Influenza.....	2	.03	10.31
Alcoholism (acute, 1; chronic, 1).....	2	.03	10.31
Mental alienation (general paralysis, 1; dementia precox, 1).....	2	.03	10.31
Arterial sclerosis.....	2	.03	10.31

TABLE NO. 8.—Deaths among officers and enlisted troops serving in the United States continental (excluding Alaska), year 1916—Continued.

Causes of death.	Number.	Ratio per 1,000 of—	
		Mean strength.	Death from disease or external causes.
DISEASES—continued.			
Congestion of the lungs.....	2	0.03	10.31
Ulcer of duodenum.....	2	.03	10.31
Intestinal obstruction.....	2	.03	10.31
Aestivo-autumnal fever.....	1	.02	5.15
Erysipelas.....	1	.02	5.15
Rheumatic fever, acute.....	1	.02	5.15
Diabetes, mellitus.....	1	.02	5.15
Leukemia.....	1	.02	5.15
Meningitis.....	1	.02	5.15
Multiple neuritis.....	1	.02	5.15
Pericarditis, acute.....	1	.02	5.15
Angina pectoris.....	1	.02	5.15
Embolism.....	1	.02	5.15
Laryngitis, acute, oedematous.....	1	.02	5.15
Echinococcus, left lung and spleen.....	1	.02	5.15
Gastric ulcer.....	1	.02	5.15
Cirrhosis of the liver.....	1	.02	5.15
Biliary calculi.....	1	.02	5.15
Pancreatitis, chronic, intestinal.....	1	.02	5.15
Pyonephrosis.....	1	.02	5.15
Raynaud's disease.....	1	.02	5.15
Sudden death—cause unknown.....	4	.06	20.63
Total for disease.....	194	2.99	1,000.00
EXTERNAL CAUSES.			
Suicides.....	39	.60	253.25
By firearms (revolver, 18; rifle, 15).....	33	.51	214.29
By hanging.....	4	.06	25.97
By poison (bichloride of mercury, 1; cocaine, 1).....	2	.03	12.99
Homicides.....	16	.25	103.90
By firearms (revolver, 7; rifle, 4; shotgun, 1; and unknown, 3).....	15	.23	97.40
By comrades (unprovoked, 6; quarrel, 4).....	10	.15	64.94
By civilians (causes unknown, 3; while resisting arrest, 1; and while attempting to arrest a drunken man, 1).....	5	.08	32.47
By being struck on head by blunt instrument.....	1	.02	6.49
By gunshot wounds.....	30	.46	194.51
(Self-inflicted, 6; accidentally by comrades, 10; by night watchman, 1; by falling shotgun, 1).....	18	.28	116.88
Killed in action and died from wounds received in action.....	9	.14	58.44
Shot by sentry.....	3	.05	19.48
Accidental.....	99	1.63	.....
By drowning (while bathing, 10; in attempting to swim the Rio Grande to rescue comrades who had been captured by Mexicans, 4; by the sinking of Government launch in Galveston Bay, 3; by upsetting a boat, 2; fall off wharf while fishing, 1; fall off horse while watering same, 1; and circumstances unknown, 1).....	22	.34	142.85
By crushing (railroad accidents, 8; run over by heavy vehicles, 6; auto accidents, 5; cave-in of gravel bank, 1).....	20	.31	120.97
By falls (from horse, 4; from high places, 3).....	7	.11	45.45
Acute poisoning (methyl alcohol, 4; anaesthesia, 2; ether, 1; and chloroform, 1).....	7	.11	45.45
Kicked by horse.....	3	.05	19.48
Asphyxia (illuminating gas, 1; buried beneath a snowslide, 1; caught in slack rope, 1).....	3	.05	19.48
By sunstroke.....	2	.03	12.99
By electricity (struck by lightning, 1; electrocution by live wire, 1).....	2	.03	12.99
Manner of receiving injuries unknown.....	3	.05	19.48
Total for external causes.....	154	2.38	1,000.00
Total for disease.....	194	2.99	557.47
Total for external causes.....	154	2.38	442.53
Grand total.....	348	5.37	1,000.00

PREVALENCE OF SPECIAL DISEASES.

TYPHOID FEVER.

Twenty-five cases of typhoid fever (officers and enlisted men) occurred in the entire United States Army during the calendar year 1916. Sixteen of these were among troops stationed in the United States; the other nine occurred in the island possessions. During the year the Army was scattered over the earth through a wide range of latitude in Alaska, in Panama, in China, in Porto Rico, in Hawaii, in the Philippines, in Mexico, and in the various camps, posts, and garrisons north, south, east, and west of the continental territory of the United States. The mean strength for the year was 110,454.

There were three deaths from typhoid fever, of which two were officers.

Of the 25 cases reported, 5 were in the person of officers and 20 in enlisted men, including 3 recruits. All except 1 enlisted man received the antityphoid vaccination; 1 officer 3 years, 8 months, and 22 days before, another officer received 3 doses in 1910 or 1911, 1 in 1912, 1 date unknown, and 1 with no information regarding vaccination.

Of 9 cases (7 in Mexico and 2 Schofield Barracks), 3 were enlisted men of the same organization, Thirteenth Cavalry, and 1 an enlisted man of the Fifth Cavalry, 2 of the First and Sixteenth Infantry, respectively, and 1 Field Artillery.

Revaccination against typhoid fever upon reenlistment is now required in the same way as revaccination against smallpox. Officers are required to be revaccinated five years after the first course. After two completed courses of vaccination are given no further is required.

Duration of immunity: The question of the duration of immunity conferred by antityphoid vaccination is still an open one, statistical information being at this time too meager to draw definite and satisfactory conclusions on this point.

The English observers from their experience in India and elsewhere have inclined to the belief that the protection against typhoid fever furnished by the vaccination as they give it begins to decline between the second and third year following administration.

Students of this subject in our Army, including those most competent anywhere to discuss the matter, have with few exceptions ascribed a much greater degree and longer period of protection against typhoid, when the vaccination was made with the vaccine prepared by the Medical Department of the Army and given, as now prescribed, three doses at intervals of 10 days, a total of 2½ cubic centimeters, the first dose being one-half cubic centimeter, the succeeding doses 1 cubic centimeter each.

It is generally understood, of course, that the protection from the typhoid vaccine has never been considered absolute in all individuals,

a certain small percentage of persons being incapable of complete immunization against the disease, as is shown by the fact that actual attacks of typhoid fever itself do not always afford freedom from a second attack. Other reasons for the appearance of typhoid among those vaccinated are inert vaccines or defective methods of administration and unusual exposure to highly infective typhoid material.

It may be stated that the disease occurring after antityphoid vaccination, with but few exceptions, shows a much milder course than ordinary, and the death rate is markedly lower among those who have received the antityphoid vaccination.

The following tabulation is for the purpose of comparing the figures for 1916 with those for the years 1915 and 1914:

Typhoid fever, the Army, officers and enlisted men, American and native troops.

Year.	Cases.		Deaths.		Immunized persons.	
	Number.	Rates for 1,000 mean strength.	Number cases.	Rates for 1,000 mean strength.	Cases.	Deaths.
1916.....	25	0.23	3	0.03	14	1
1915.....	8	.08	3	.03	7	1
1914.....	7	.07	3	.03	1	1

Attention is invited to Chart P, showing the admission and death rates for officers and enlisted men serving in the United States. This chart shows graphically the remarkable decrease in both rates as the result of the use of the antityphoid vaccination. This vaccination was begun—but was voluntary—in 1909, and was made compulsory for the entire Army in 1911. (For the various steps from voluntary to compulsory vaccination, vide annual report of this office for 1912, pp. 52 et seq.)

The increasing use of antityphoid vaccination as a prevention against typhoid by the National Guard is to be encouraged. This procedure is now necessary before these troops can be mustered into the Federal service, or be accepted as volunteers; and to have this already accomplished is to materially expedite the mustering in of such troops. It is also deemed desirable, in order that standardized reports may be obtained, that the vaccine made for the Regular Army and supplied by the laboratory, Army Medical School, Washington, D. C., be used for the troops liable to service.

TABLE No. 9.—*Typhoid fever.*

No.	Rank.	Date of enlistment or commission.	Date taken sick.	Date vaccinated.			Original diagnosis.	Laboratory findings.	Previous vaccination for typhoid.	Result of disease.	Age.	Station.	Remarks.
				First dose.	Second dose.	Third dose.							
1	Private, Company I, First Infantry.	1915 Mar. 6	1916 Jan. 28	1915 Mar. 6	1915 Mar. 16	.....	Typhoid..	Urine culture for b. typhosus confirmed.	Vac., no; typ., no.	Duty, May 18, 1916.	30	Schofield Barracks, Hawaii.	
2	First Lieutenant, Coast Artillery Corps.	.....	1916 Feb. 4	1912 Apr. 22	1912 May 2	1912 May 13	Typhoid..	Blood test positive.	Typ., no..	Died, Feb. 27, 1916.	30	Walter Reed General Hospital, D. C.	
3	Private, One hundred and sixty-second Company, Coast Artillery Corps.	1914 July 6	1916 Feb. 13	1915 June 10 ¹	.....	.....	Typhoid..	Blood test positive.	Vac., yes; typ., no.	Died, Mar. 3, 1916.	27	Fort Dade, Fla.	
4	Private, Sixty-fourth Company, Coast Artillery Corps.	1915 Feb. 9	1916 Mar. 11	1915 Feb. 9	1915 Feb. 18	1915 Feb. 27	Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, June 7, 1916.	26	Fort Winfield Scott, Cal.	Treated in Letterman General Hospital.
5	Second Lieutenant, Fifth Cavalry.	1915 June 12	1916 Apr. 30	1912 3 doses..	.....	.....	Typhoid..	Blood test positive.	Typ., no..	Left hospital July 1, 1916.	22	Fort Bliss, Tex.	
6	Captain, First Field Artillery.	1901 Feb. 2	1916 May 20	1910 3 doses..	.....	.....	Typhoid..	Blood test positive.	Typ., no..	Duty, Aug. 2, 1916.	39	Schofield Barracks, Hawaii.	
7	Private, Company B, Ninth Infantry.	1916 June 14	1916 June 20	None....	.....	.....	Typhoid..	Blood test positive.	Vac., no; typ., no.	Duty, Sept. 7, 1916.	25	Ninth Infantry, Learedo, Tex.	
8	Private, First Company, Coast Artillery Corps.	1916 May 10	1916 June 23	1916 June 21	.....	.....	Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Sept. 9, 1916.	22	Fort Greble, R. I.	

¹ Typhoid prophylactic completed.

TABLE No. 9.—Typhoid fever—Continued.

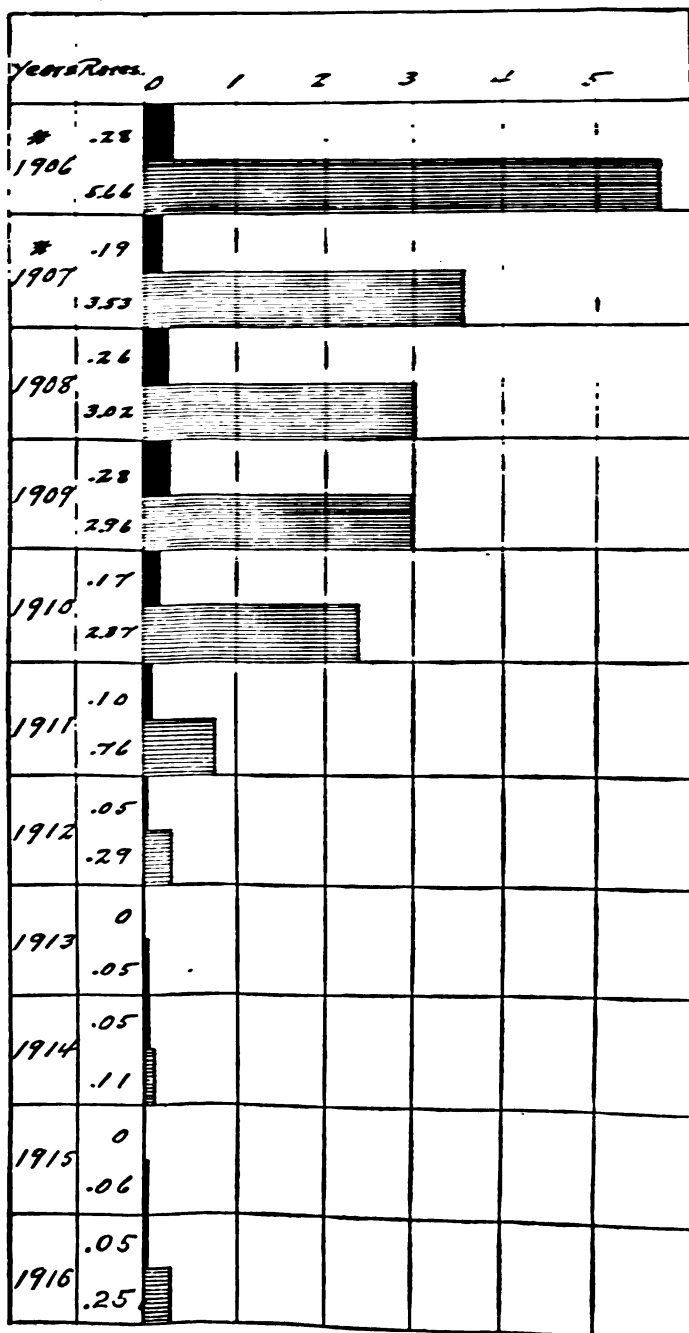
No.	Rank.	Date of enlistment or commission.	Date taken sick.	Dates vaccinated.			Original diagnosis.	Laboratory findings.	Previous vaccination for typhoid.	Result of disease.	Age.	Station.	Remarks.
				First dose.	Second dose.	Third dose.							
9	Second lieutenant, Quartermaster Corps.	1916 July 25	1916 July 15	None.....	.....	.....	Typhoid..	Clinical diagnosis.	Unknown.	Left hospital, Oct. 8, 1916.	35	Colonia Dublan, Mexico.	Treated in base hospital, Fort Bliss, Tex., Aug. 2 to Oct. 8, 1916.
10	Sergeant, Company C, Fourth Field Artillery.	1913 Jan. 30	1916 July 20	.....	.....	.....	Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Oct. 11, 1916.	31	Colonia Dublan, Mexico.	Treated in base hospital, Fort Bliss, Tex., from Aug. 4 to Oct. 11, 1916.
11	Recruit Medical Department, unassigned.	1916 July 18	1916 July 23	1916 July 18	.....	.....	Typhoid..	Blood test positive.	Vac., no; typ., no.	Duty, Oct. 11, 1916.	23	Columbus Barracks, Ohio.	Disease contracted before enlistment.
12	Recruit, Fifteenth Recruit Company.	1916 July 14	1916 July 24	1916 July 17	.....	.....	Typhoid..	Blood test positive.	Vac., no; typ., no.	Duty, Oct. 15, 1916.	18	Jefferson Barracks, Mo.	
13	Private, Quartermaster Corps.	1913 Mar. 6	1916 Aug. 13	1916 June 31	.....	.....	Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Oct. 6, 1916.	30	Fort Sam Houston, Tex.	Treated in Army and Navy General Hospital, Hot Springs, Ark., Sept. 10 to Oct. 6, 1916.
14	Sergeant, Company C, Thirteenth Cavalry.	1914 Mar. 28	1916 Sept. 18	1912 Nov. 30	.....	.....	Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Oct. 27, 1916.	26	Colonia Dublan, Mexico.	
15	Private, Medical Department.	1916 July 4	1916 Oct. 1	Ret. St. 1916 July 5	Ret. St.	.....	Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Dec. 13, 1916.	21	Fort Bliss, Tex.	
16	Private, Company O, Thirteenth Cavalry.	1916 Mar. 16	1916 Oct. 1	1914 Apr. —	.....	.....	Paratyphoid.	Diagnosis changed to typhoid fever Oct. 14, 1916.	Typ., no..	Duty, Dec. 13, 1916.	21	Colonia Dublan, Mexico.	
17	Recruit, Second Company, Cavalry, unassigned.	1916 Sept. 29	1916 Oct. 5	1916 Sept. 29	None....	None....	Typhoid..	Blood test positive.	Vac., no; typ., no.	Duty, Nov. 20, 1916.	19	Fort Slocum, N.Y.	In incubation stage at enlistment.

18	Private, Company G, Sixth Cavalry.	1916 Jan. 10	1916 Oct. 10	1916 Jan. —					Typhoid..	Blood test negative.	Vac., yes; typ., no.	Duty, Dec. 28, 1916.	26	Marfa, Tex..
19	Private, Company C, Sixth Cavalry.	1915 June 8	1916 Oct. 13	1916 June —					Typhoid..	Blood test negative.	Vac., yes; typ., no.	Duty, Jan. 29, 1917.	22	Tellingua, Tex.
20	Private, Company C, Sixth Cavalry.	1916 Jan. 7	1916 Oct. 19	1916 Jan. —					Typhoid..	Blood test negative.	Vac., yes; typ., no.	Duty, Dec. 30, 1916.	27	Tellingua, Tex.
21	Sergeant, supply, Sixteenth Infantry.	1914 July 6	1916 Oct. 21	1916 Oct. 21					Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Dec. 16, 1916.	42	El Valle, Mexico.
22	First Lieutenant, Medical Reserve Corps.	1916 July 3	1916 Oct. 24						Typhoid..	Blood test negative.	Vac., yes; had typ. 1908.	Died, Dec. 12, 1916.	40	Marfa, Tex..
23	Private, Company A, Fifth Cavalry.	1915 Mar. 9	1916 Oct. 30						Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Dec. 9, 1916.	38	El Valle, Mex.
24	Corporal, Company H, Fourteenth Cavalry.	1913 Dec. —	1916 Nov. 14	1914 Jan. 18 ¹					Typhoid..			Duty, Jan. 9, 1917.	23	Third Infantry, Eagle Pass, Tex.
25	Private, Company G, Thirteenth Cavalry.	1912 July 10	1916 Nov. 15	1913 Aug. 12 ¹					Typhoid..	Blood test positive.	Vac., yes; typ., no.	Duty, Mar. 7, 1917.	24	Columbia Dublan, Mexico.
														Admitted with broncho-pneumonia, onset of typhoid fever, Dec. 7, 1916.

! Typhoid prophylaxis completed,

REPORT OF THE SURGEON GENERAL

Chart P.—United States. Officers and men.
 (Admissions and death rates for typical five-year periods 1906-1916.)

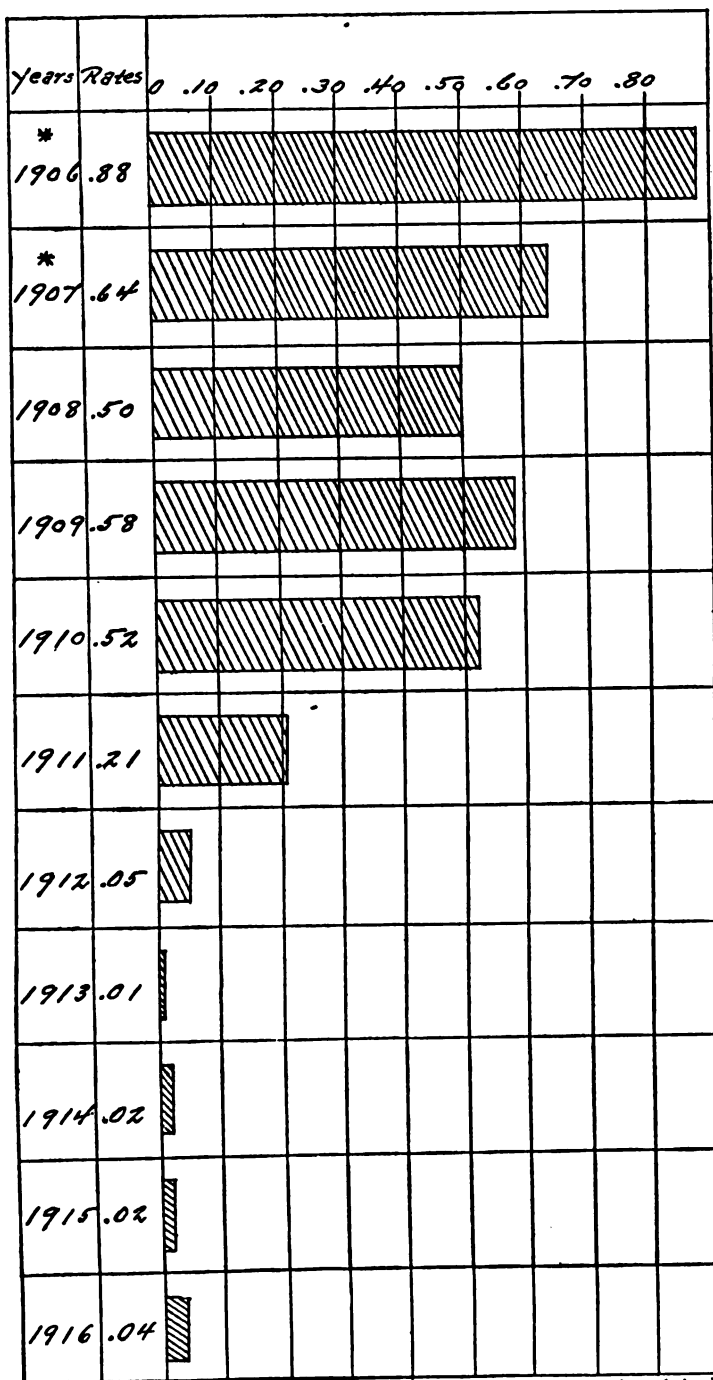


Deaths. 
 *. Enlisted men.

Admissions. 
 Officers not included.

Chart P¹.—United States. Officers and men.

[Noneffective rates for typhoid fever, years 1906-1916.]



* Enlisted men.

* Officers not included.

Chart Q.—Army. Officers and American and native troops.

[Admission rates for typhoid fever, years 1906-1916.]

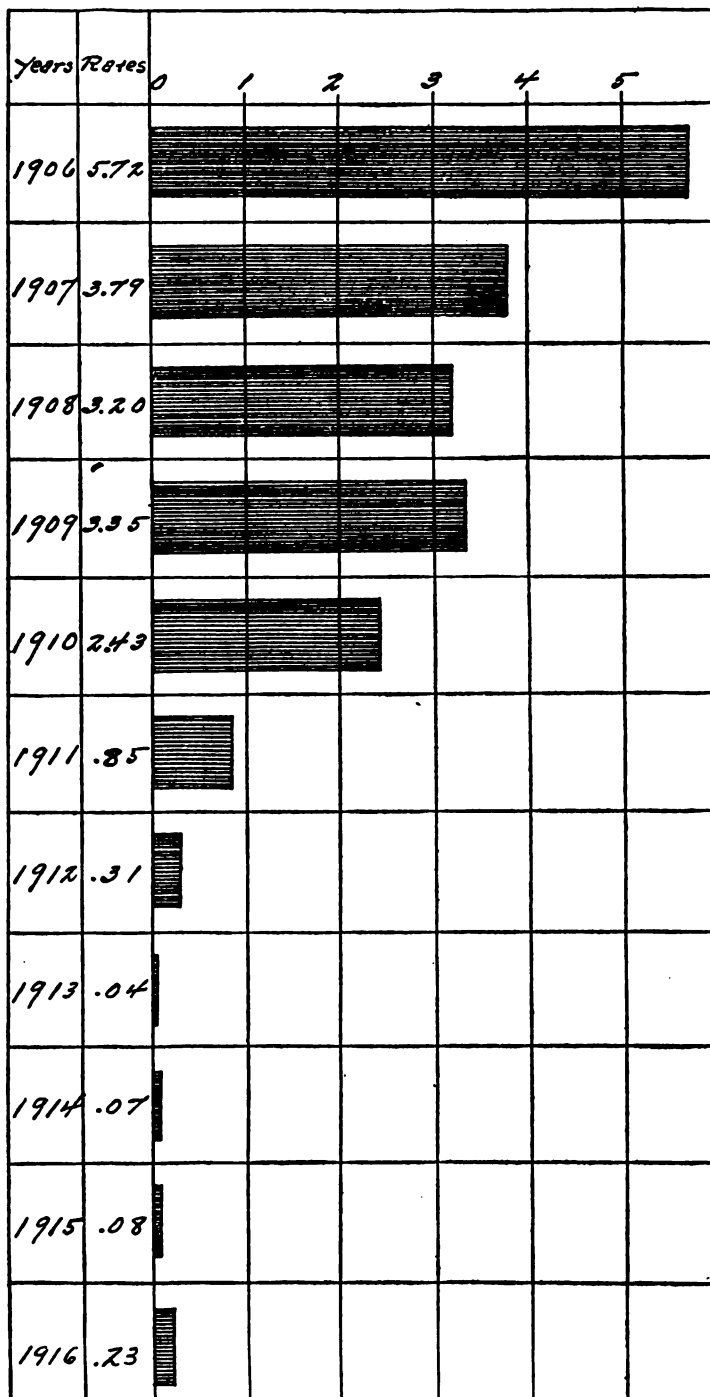
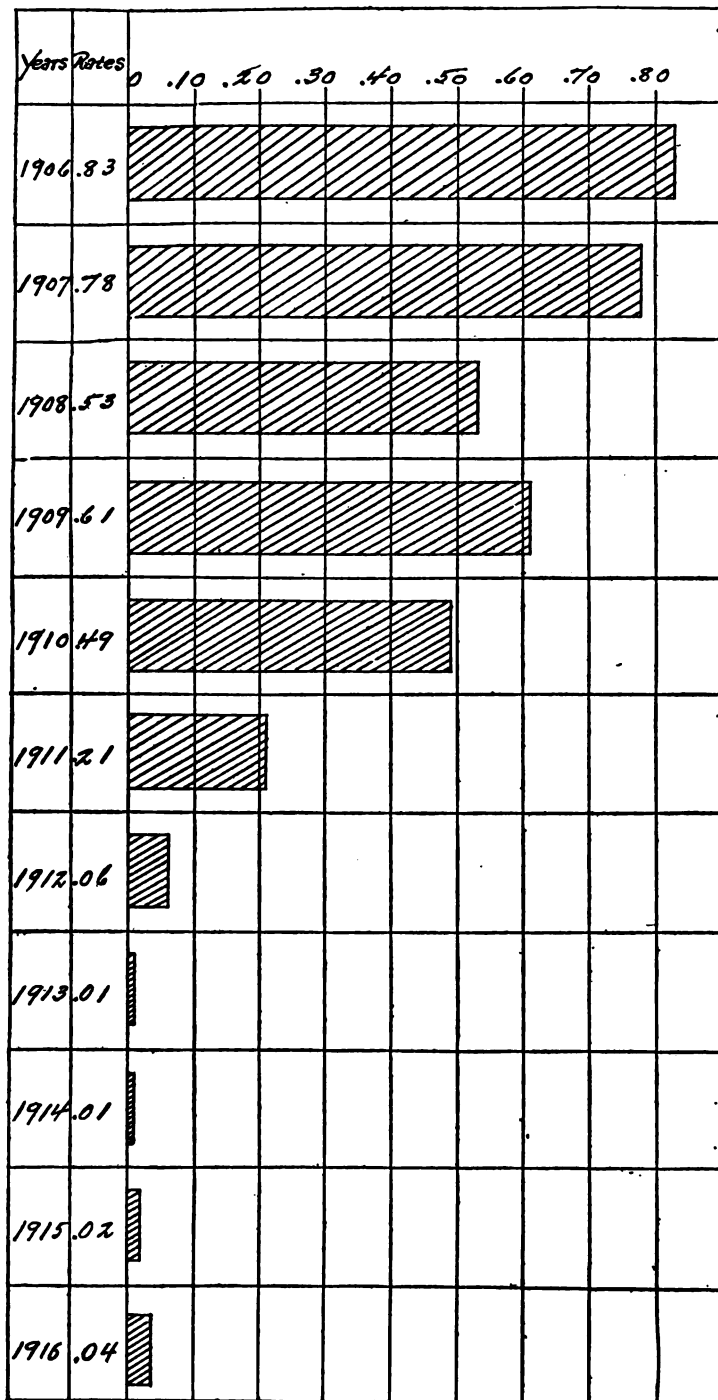


Chart Q¹.—Army. Officers and American and native troops.

[Noneffective rates for typhoid fever, years 1906-1916.]



PARATYPHOID FEVER.

Table No. 10 shows that 114 cases of paratyphoid fever occurred in the entire Regular Army during the calendar year 1916. Ninety-one of these cases were reported from Mexico and 1 from China, leaving but 22 distributed throughout the United States—18 on the border, 2 at Fort Sam Houston, Tex., and 2 at Fort Bliss, Tex.

It is, of course, well understood that paratyphoid fever is a distinct clinical entity and is not typhoid fever, though sometimes resembling atypical cases of that disease. It is caused by a different micro-organism, the bacillus paratyphosus, of which two types are distinguishable—*B. paratyphosus* A and *B. paratyphosus* B. In western Europe, as reported, paratyphoid fever is much more frequently due to the B type of bacillus than to the A type. Clinically they are hardly distinguishable, but it is stated that A fever is apt to last three or four days longer.

An important feature in the prevention of paratyphoid fever, as in typhoid fever is the active searching out of "carriers" and their prompt isolation and treatment.

TABLE No. 10.—*Paratyphoid fever, 1916.*

[Officers and enlisted men (total).]

	Regulars.		National Guard.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Army:						
Number.....	114	.....	296	4	410	4
Ratio.....	1.03	.....	4.49	0.06	2.32	0.02
United States:						
Number.....	22	.....	296	4	318	4
Ratio.....	0.34	.....	4.49	0.06	2.44	0.02

Of the 296 cases and 4 deaths occurring in the entire National Guard during the year, 215 cases (29.07 per 1,000) and 3 deaths were reported among the New York State troops, and of this number 44 cases are charged to camps located in that State and 171 cases and 3 deaths to stations on the Mexican border.

It may be stated at this time that paratyphoid fever, heretofore but infrequently met with in our Army, appeared in the New York division of the National Guard, stationed in the Brownsville district, in August, 1916, principally among the troops at Mission, Tex. A few scattering cases at other points occurred in the same district; in all, a total of 120 cases.

The outbreak of this disease was promptly and satisfactorily met. The vaccination against paratyphoid with a mixed paratyphoid A and B vaccine prepared in the laboratories of the Army Medical School was authorized, the searching out of possible "carriers" of the disease was vigorously prosecuted, camp sites were changed, and all sanitary orders rigidly enforced under the direction of inspectors of the Army Medical Corps.

VENEREAL DISEASES.

Special measures for protection against this class of infectious diseases were formulated six years ago, since which time, so far as lies in the power of the Medical Department, they have been vigorously and conscientiously carried out, and it is further believed that in the great majority of instances there has been no laxness in the strict enforcement of the regulations by others in military authority. It should be understood that the prime source of infection in venereal diseases lies not within military jurisdiction and control, but in the civilian life, quite apart from the immediate garrison life of the soldier and the rigid supervision incident thereto.

TABLE NO. 12.—*Venereal diseases, Army and United States continental (excluding Alaska) enlisted American troops, compared for years 1914, 1915, and 1916.*

	Army (enlisted American troops).			United States continental (excluding Alaska) enlisted men.		
	1916	1915	1914	1916	1915	1914
Ratios per 1,000 of mean strength for:						
Cases admitted.....	103.35	107.71	110.69	91.23	83.60	86.84
Men constantly noneffective.....	5.62	4.78	4.73	5.58	3.99	3.75

TABLE No. 13.—*Venereal diseases, admissions, and discharges, Army American troops (enlisted men), year 1916.*

[illegible]

TABLE NO. 14.—*Veneral diseases, by years, 1912 to 1916, United States, continental (excluding Alaska), enlisted men.*

[Ratio per 1,000 of mean strength.]

	Admitted.			Discharged on certificate of disability.			Died.			Noneffective.		
	Total.	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.
Gonorrhea and results:												
1916.....	54.84	54.32	92.88	0.98	0.92	4.83	0.02	0.02	.....	2.65	2.56	9.32
1915.....	50.56	50.91	41.82	.31	.32	.....	.02	.02	.....	2.05	2.04	2.19
1914.....	51.35	52.04	28.99	.32	.33	.....	.....	.....	.....	1.80	1.81	1.44
1913.....	49.46	49.14	60.14	.66	.68	.....	.....	.....	.....	1.84	1.84	1.65
1912.....	70.07	69.87	74.36	.60	.61	.40	.02	.02	.....	3.26	3.27	2.94
Chancroid:												
1916.....	18.02	18.02	18.09	.....	.....	.....	.....	.....	.....	1.06	1.05	1.80
1915.....	15.80	15.73	17.63	.03	.02	.41	.....	.....	.....	.72	.71	.85
1914.....	19.96	20.09	18.56	.....	.....	.....	.....	.....	.....	.80	.79	1.18
1913.....	15.38	15.11	24.76	.....	.....	.....	.....	.....	.....	.67	.56	.98
1912.....	20.09	20.52	10.45	.03	.03	.....	.....	.....	.....	1.01	1.03	.50
Syphilis:												
1916.....	18.36	17.99	45.84	.65	.64	1.21	.13	.12	1.21	1.88	1.78	9.14
1915.....	17.24	17.44	12.30	.54	.51	1.23	.05	.08	.41	1.22	1.23	1.18
1914.....	18.53	18.86	7.66	.55	.43	4.38	.05	.05	.....	1.15	1.11	2.46
1913.....	20.99	20.98	21.23	.35	.29	2.36	.07	.05	.69	1.17	1.15	1.90
1912.....	25.58	25.84	19.69	.62	.61	.80	.03	.03	.....	1.70	1.68	2.11
Total venereal:												
1916.....	91.23	90.34	156.82	1.63	1.57	6.03	.15	.13	1.21	5.58	5.38	20.26
1915.....	83.60	84.08	71.75	.88	.85	1.64	.06	.05	.41	3.99	3.98	4.22
1914.....	89.84	90.99	52.52	.87	.77	4.38	.05	.05	.....	1.15	1.11	2.46
1913.....	85.83	85.23	106.13	1.01	.97	2.36	.07	.05	.69	3.58	3.55	4.53
1912.....	115.74	116.24	104.50	1.26	1.26	1.21	.05	.05	.....	5.96	5.98	5.55

TABLE NO. 15.—*Syphilis, United States, continental (excluding Alaska), years 1912 to 1916, enlisted men.*

[Ratio per 1,000 of mean strength.]

Year.	Primary syphilis.		Secondary syphilis.		Tertiary syphilis.		Hereditary syphilis.		Total.	
	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.
1916.....	3.51	0.27	11.17	1.00	2.22	0.45	0.05	0.01	17.61	1.80
1915.....	2.86	.15	11.53	.67	2.39	.35	.06	.01	17.24	1.22
1914.....	3.10	.17	12.73	.63	2.25	.32	.05	.02	18.53	1.15
1913.....	2.72	.13	15.45	.73	1.90	.27	.02	.01	20.99	1.17
1912.....	3.89	.18	19.01	1.20	2.50	.31	.17	.01	25.58	1.70

TABLE NO. 16.—*Recruit depots, total number of admissions, venereal diseases, with ratios and mean strength, officers and enlisted men, years 1916, 1915, and 1914.*

Recruit depots.	1916			1915			1914		
	Admissions.		Mean strength.	Admissions.		Mean strength.	Admissions.		Mean strength.
	Total.	Ratio.		Total.	Ratio.		Total.	Ratio.	
Jefferson Barracks, Mo.....	248	167.45	1,481	222	157.11	1,413	202	135.48	1,491
Columbus Barracks, Ohio.....	198	148.76	1,331	110	94.34	1,166	194	128.39	1,511
Fort McDowell, Cal.....	103	108.42	950	104	119.40	871	97	94.36	1,028
Fort Logan, Colo.....	55	90.31	809	32	56.04	571	76	116.92	650
Fort Slocum, N. Y.....	60	51.64	1,162	77	59.82	1,287	129	88.30	1,461
Total.....	664	120.01	5,533	545	102.68	5,808	698	113.06	6,141

The admission rate for enlisted men in the United States is somewhat higher than for 1915, being 91.23 compared with 83.60 per 1,000.

The noneffective rate was considerably higher, being 5.58 per 1,000 for 1916 as against 3.99 in 1915, which may be accounted for by the presence in hospital for a greater length of time of cases of syphilis. There was an increase in the number of cases so diagnosed of 29 over 1915. For gonorrhea the number of cases is 146 more than last year, and in the local infection, chancroid, the increase is 100. In 1913 there was a large falling off in the number of secondary and tertiary cases of syphilis and a decrease in the case rate for the primary cases. It will be noted from Table No. 15 that a like decrease has taken place in the number of cases of tertiary syphilis for 1916, while there is an increase in the rate for primary cases.

In comparing the figures for 1916 and 1915 with those for 1913 and 1914 and the preceding years it must be borne in mind that the diagnoses made prior to 1911 were determined without the aid of the Wassermann reaction. By reason of this many latent cases are now detected which were largely missed prior to 1911.

By reference to Table No. 12 it will be seen that the admission rate for the total American troops of the Army also was lower than for the year 1915, the rate being 103.35 as against 107.71, while the noneffective rate was higher, being 5.62 per 1,000 in 1916 as compared with 4.78 in 1915.

TABLE NO. 17.—*Venereal diseases, officers and enlisted men, admissions and ratios per 1,000, for posts of more than 300 men, in the United States (excluding Alaska), 1915 and 1916.*

		1916		1915		Relative standing on list.	
		Mean strength.	Admissions.		Admissions.		
			Total.	Ratio.	Total.		Ratio.
1	Fort Sam Houston, Tex.....	2,135	471	220.61	217	167.83	1
2	Fort Oglethorpe, Ga.....	330	63	190.91	155	141.17	3
3	Fort Bliss, Tex.....	1,341	208	155.11	112	136.09	4
4	Fort Moultrie, S. C.....	358	42	117.32	41	103.27	9
5	Fort Strong, Mass.....	375	37	98.67	28	59.57	26
6	Fort Ethan Allen, Vt.....	630	59	93.65	56	64.44	28
6½	United States (total officers and enlisted men).....	64,466	5,613	87.07	5,340	79.95	17½
7	Fort Andrews, Mass.....	325	28	86.16	30	68.65	30
8	Washington Barracks, D. C.....	330	28	84.85	43	84.65	30
9	Fort Myer, Va.....	513	43	83.82	56	80.69	16
10	Fort Sill, Okla.....	925	72	77.84	122	103.21	17
11	Fort Barrancas, Fla.....	430	33	76.74	43	67.50	21
12	Fort McKinley, Me.....	439	33	75.17	41	73.21	21
13	Fort McIntosh, Tex.....	365	27	73.97	41	107.05	18
14	Fort H. G. Wright, N. Y.....	644	47	72.98	37	54.17	8
15	Fort Riley, Kans.....	415	30	72.30	33	69.62	29
16	Fort Screven, Ga.....	387	27	69.77	55	123.87	19
17	Fort Dupont, Del.....	309	21	67.96	11	40.44	6
18	Fort Leavenworth, Kans.....	487	33	67.76	76	93.71	13
19	Presidio of San Francisco, Cal.....	542	34	62.73	130	119.05	17
20	Vancouver Barracks, Wash.....	640	38	56.37	92	96.04	37
21	Fort Rosecrans, Cal.....	311	18	57.88	23	45.10	12
22	Fort Jay, N. Y.....	365	21	57.53	33	86.92	34
23	Fort Clark, Tex.....	358	19	53.07	48	86.89	15
24	Fort Adams, R. I.....	516	27	52.32	30	50.42	30
25	Plattsburg Barracks, N. Y.....	952	49	51.47	48	43.71	36
26	Fort Monroe, Va.....	473	22	46.51	50	65.28	32
27	Fort Hamilton, N. Y.....	1,156	52	44.98	90	66.57	32
28	Fort Winfield Scott, Cal.....	505	22	43.57	14	22.26	43
29	Fort Howard, Md.....	331	14	42.30	9	28.39	41
30	Fort Wadsworth, N. Y.....	337	14	41.54	8	21.92	44
31	Fort Hancock, N. J.....	670	27	40.30	25	33.33	47

TABLE NO. 17.—*Venereal diseases, officers and enlisted men, admissions and ratios per 1,000, for posts of more than 300 men, in the United States (excluding Alaska), 1915 and 1916—Continued.*

		1916			1915		
		Mean strength.	Admissions.		Admissions.		Relative standing on list.
			Total.	Ratio.	Total.	Ratio.	
22	Fort Worden, Wash.....	639	25	39.13	35	55.29	27
33	Fort Casey, Wash.....	336	13	38.69	10	29.33	40
34	Fort Williams, Me.....	415	16	38.56	15	29.76	39
35	Fort Stevens, Oreg.....	312	12	38.46	2	5.17	45
36	Fort Terry, N. Y.....	602	20	33.22	31	45.52	33
37	Fort Totten, N. Y.....	495	16	32.32	27	47.71	32
38	West Point, N. Y.....	840	16	19.05	23	27.45	42

TABLE NO. 18.—*Venereal diseases, Army, American troops, officers and enlisted men, by departments and divisions, year 1916.*

	Mean strength.			Cases.			Rates per 1,000 of mean strength.		
	Off-icers.	Enlist-ed men.	Total.	Off-icers.	Enlist-ed men.	Total.	Off-icers.	Enlist-ed men.	Total.
Army American troops.....	4,734	99,186	103,920	16	10,251	10,267	3.38	103.35	98.80
United States, continental (exclud- ing Alaska).....	3,056	61,410	64,466	10	5,608	5,613	3.27	91.23	87.07
Eastern Department.....	887	14,959	15,846	3	1,066	1,069	3.38	71.26	67.46
Central Department.....	147	1,515	1,662	.....	98	98	.....	64.60	58.97
Southern Department (excluding troops on Mexican border and in Mexico).....	232	5,224	5,456	1	818	819	4.31	156.58	150.11
Troops on Mexican border.....	1,147	26,065	27,212	12	2,421	2,433	10.46	92.88	89.41
Troops in Mexico.....	294	8,049	8,343	1	538	539	3.40	66.84	64.60
Western Department.....	266	5,743	6,009	.....	378	378	.....	65.82	62.91
Independent stations.....	207	1,989	2,196	.....	69	69	.....	34.64	31.42
Recruit depots.....	122	5,411	5,533	.....	664	664	.....	122.71	120.01
General hospitals.....	48	504	552	2	81	83	41.67	160.71	150.36
Alaska.....	25	745	770	.....	15	15	.....	20.13	19.48
Panama Canal Zone.....	240	6,783	7,023	.....	812	812	.....	119.71	115.62
Hawaiian Department.....	313	8,476	8,789	1	832	833	31.95	98.16	91.78
China.....	48	1,321	1,369	.....	390	390	.....	295.23	284.88
Philippine Islands (American troops).....	664	11,580	12,244	4	1,891	1,895	6.02	163.30	151.77
Army transports.....	58	822	880	.....	170	170	.....	206.81	193.18
Philippine Scouts.....	.....	5,579	5,579	.....	167	167	.....	29.93	29.93
Porto Rican Regiment.....	36	955	991	.....	80	80	.....	83.77	80.73

Table No. 16 shows the rates of admission for three years of venereal disease at the five recruiting depots. Of the five recruiting stations, two—Forts Slocum and McDowell—show a slight decrease over the rates for 1915, Fort Slocum having the lowest rate for 1916. Taking the five recruit depots as a whole, the total admission rate is higher for 1916, being 120.01, as compared with 102.68 in 1915 and 113.66 for 1914. Jefferson Barracks has the highest rate of any of the depots, 167.45 per 1,000 in 1916, as compared with 157.11 in 1915, with a rate of 148.76 in 1916 at Columbus Barracks, as compared with 94.34 for 1915.

Table No. 17 gives the relative standing and rates with reference to venereal disease for 38 posts in the United States. The post having the highest rate for venereal disease is Fort Sam Houston, Tex. The fact that Fort Sam Houston leads all other posts for

venereal disease this year can be accounted for by the mobilization of a good portion of our troops on the southern border. But such facts seem only to extenuate, but not to excuse, the failure to lower the ratio of these preventable diseases.

The most marked improvement is shown at Presidio of San Francisco, where the admission rate was reduced from 119.05 in 1915 to 62.73 per 1,000 in 1916; where formerly Presidio stood No. 7 on the list, this year it stands No. 19; Fort Screven, which last year stood No. 6 on the list, this year stands No. 16, while Fort Clark moved from No. 15 last year to No. 23 this year.

MALARIAL FEVERS.

The admission rate for malarial fever, officers and enlisted men, in the United States for 1916 is slightly lower than for the year 1915, being 12.19 per 1,000, as compared with 12.37 in 1915. The rates for 1914 was 10.74; that for 1913, 8.62; that for 1912, 13.99; and for 1911, 14.35.

The noneffective rate for 1916 was 0.34, as compared with 0.27 in 1915, 0.24 in 1914, 0.18 in 1913, and 0.29 per 1,000 in 1912.

No discharges, but two deaths, resulted from malarial fevers during the year. Chart R shows comparative rates for this disease for the entire command, including officers.

TABLE NO. 19.—*Malarial infections, United States, continental (excluding Alaska), years 1912 to 1916, inclusive, officers and enlisted men.*

(Ratio per 1,000 of mean strength.)

Malarial fevers.	Admitted.					Noneffective.					Discharges.	Deaths.
	Total United States.	Officers.	Enlisted men.			Total United States.	Officers.	Enlisted men.				
			Total.	White.	Colored.			Total.	White.	Colored.		
Quartan and tertian:												
1916.....	10.33	3.60	10.67	10.71	7.24	0.26	0.07	0.27	0.27	0.31	.....	.....
1915.....	9.25	5.22	9.44	9.61	5.33	.20	.22	.20	.20	.09	.....	.....
1914.....	9.28	5.68	9.45	9.67	2.19	.18	.16	.18	.18	.09	.....	.....
1913.....	7.16	4.17	7.31	7.50	1.18	.14	.14	.13	.14	.01	.....	.....
1912.....	12.20	7.92	12.42	12.80	2.01	.24	.12	.24	.25	.04	.....	.....
Estivo-autumnal:												
1916.....	.88	.65	.90	.87	2.41	.04	.10	.03	.03	.29	.....	0.03
1915.....	1.87	.33	1.95	1.97	1.23	.04	.07	.04	.04	.04	.....	.03
1914.....	.71	2.00	.65	.67	.....	.03	.....	.02	.02	.....	.....	.....
1913.....	.69	.96	.67	.69	.....	.02	.02	.13	.14	.01	.....	.....
1912.....	.94	.66	.96	1.00	.....	.03	.02	.24	.25	.04	.....	.....
Malaria cachexia and undetermined malarial fever:												
1916.....	.98	1.30	.96	.96	1.21	.04	.22	.03	.03	.03	.....	.....
1915.....	1.24	1.63	1.23	1.27	.....	.03	.10	.03	.03	.....	.....	.....
1914.....	.75	2.00	.69	.71	.....	.03	.....	.04	.04	.....	.....	.....
1913.....	.78	.32	.81	.64	6.49	.03	.....	.02	.02	.11	0.02	.....
1912.....	.85	.99	.84	.77	2.41	.03	.03	.02	.02	.02	.....	.....
Total malarial diseases:												
1916.....	12.19	5.56	12.52	12.54	10.86	.34	.89	.33	.33	.63	.....	.02
1915.....	12.37	7.18	12.62	12.86	6.56	.27	.40	.27	.27	.13	.....	.03
1914.....	10.74	9.68	10.79	11.05	2.19	.24	.37	.24	.24	.06	.....	.....
1913.....	8.62	5.45	8.79	8.82	7.67	.18	.16	.18	.18	.12	.02	.....
1912.....	13.99	9.57	14.22	14.25	4.42	.29	.17	.30	.31	.06	.....	.....

TABLE NO. 20.—*The 10 posts of more than 200 (officers and enlisted men) in the United States, continental (excluding Alaska), having the highest admission rates for malarial diseases, year 1916, compared with 1915.*

[Ratio per 1,000 of mean strength.]

	Mean strength.		Malarial diseases, total ratio.	
	1916	1915	1916	1915
Jefferson Barracks, Mo.....	1,481	1,413	53.34	37.51
Fort Sam Houston, Tex.....	2,135	1,293	30.45	17.79
Fort Sill, Okla.....	925	1,182	27.03	26.23
Fort Myer, Va.....	513	694	13.65	27.88
Fort Screven, Ga.....	387	444	10.34	22.52
Fort Leavenworth, Kans. (military prison).....	316	272	9.49	22.06
Fort Moultrie, S. C.....	358	397	8.38	73.05
Washington Barracks, D. C.....	330	508	6.06	33.46
Fort Caswell, N. C.....	201	290	4.98	17.24
Fort D. A. Russell, Wyo.....	232	264	4.31	26.52

From the above table it will be noted that Fort Moultrie, S. C., which had an admission rate in 1915 of 73.05, this year shown 8.38 per 1,000, a remarkable reduction, due to the vigorous antimosquito campaign that is being waged where mosquitoes are prevalent.

TUBERCULOSIS.

The following tabulation shows for the total American Army, and separately for the different countries where the Army has been stationed continually, the case rate for tuberculosis (all forms) for enlisted men for the last seven years. In this tabulation all readmissions during each year have been eliminated, so that the actual occurrence of tuberculosis (all) is shown:

Tuberculosis (all), enlisted men, case rates only.

Year.	United States.	Philippine Islands.	Alaska.	Hawaii.	Transports.	Panama.	China.	Total.
1916.....	3.53	3.96	.....	3.19	2.43	4.13	1.51	3.45
1915.....	2.68	6.42	1.31	3.62	5.34	6.12	5.24	3.52
1914.....	2.69	7.31	1.09	3.01	2.85	2.49	6.69	3.35
1913.....	3.07	6.70	1.75	4.24	4.37	3.76	3.29	3.66
1912.....	3.25	5.02	4.13	2.07	2.74	.....	.....	3.49
1911.....	3.64	3.77	2.68	1.99	1.76	.....	.....	3.55
1910.....	3.34	5.46	1.85	4.10	.80	.....	.....	3.65

The above tabulation shows that for the year 1916 the case rate for tuberculosis in the United States is higher than for any previous year recorded with the exception of 1911, 3.64, being 3.53, as compared with 2.68 per 1,000 for 1915. The general rate for the American Army was 3.45, which is slightly lower than for the year 1915. All of the places shown in the tabulation have lower rates for 1916 than for the United States, with the exception of the Philippine Islands and Panama, the rates for which are 3.96 and 4.13 per 1,000, as compared with 6.42 and 6.12 for 1915. The other places show a decrease in their rates when compared with 1915 and, with the exception of the Philippine Islands and Panama, show a decrease in rate for 1916 to that for the American Army.

The following tabulation shows for the total American Army, and for those parts stationed in the United States and the Philippine Islands, the rates for tuberculosis (all) for discharges for disability, for deaths, and for noneffectiveness for the last four years.

Tuberculosis (all) total American Army, United States and Philippine Islands, years 1913 to 1916 (enlisted men).

	Year.	Dis- charged for dis- ability.	Deaths.	Non- effective.
Army, American troops.....	1916	2.20	.38	1.79
	1915	1.79	.33	1.80
	1914	2.07	.47	1.77
	1913	2.26	.49	1.94
American troops, United States.....	1916	1.94	.28	2.64
	1915	1.67	.28	2.33
	1914	2.10	.47	2.23
	1913	2.16	.40	2.34
American troops, Philippine Islands.....	1916	2.25	.95	.37
	1915	3.28	.50	.50
	1914	3.41	.28	.00
	1913	3.95	.79	.56

Table No. 21 gives the occurrence of tuberculosis at Army posts in the United States. Fort Sam Houston, Tex., shows the admission of 12 cases, the highest number reported; Vancouver Barracks shows 3 cases admitted as against 7 in 1915. Forty-four more cases of this disease occurred than during the year 1915. and an increase over 1914 of 48 cases.

TABLE NO. 21.—*Tuberculosis (all) at Army stations, United States, continental (excluding Alaska). 1916, compared with 1915 and 1914, officers and enlisted men.*

	Admissions.					
	1916		1915		1914	
	Number.	Ratio per 1,000 of mean strength.	Number.	Ratio per 1,000 of mean strength.	Number.	Ratio per 1,000 of mean strength.
Fort Sam Houston, Tex.....	12	5.62	7	5.41	5	4.56
Fort McDowell, Cal.....	9	9.47	4	4.59	1	.97
Fort Bayard, N. Mex.....	8	48.19	2	12.82	3	19.11
Jefferson Barracks, Mo.....	6	4.05	4	2.83	2	1.34
Fort Myer, Va.....	5	9.75	5	7.20	2	2.85
Fort Greble, R. I.....	5	17.24				
Presidio of San Francisco, Cal.....	5	9.22	4	3.66	3	6.41
Fort Bliss, Tex.....	5	3.73	5	6.08	4	5.96
Fort Barrancas, Fla.....	4	9.30	2	3.14	1	1.62
Letterman General Hospital, Cal.....	3	16.45	4	21.39	5	26.60
Fort Worden, Wash.....	3	4.69	2	3.16	5	7.76
Vancouver Barracks, Wash.....	3	4.69	7	7.31	1	.98
Fort Leavenworth, Kans.....	3	6.18	2	2.47		
Fort D. A. Russell, Wyo.....	3	12.93				
Fort Sheridan, Ill.....	3	23.26	2	5.09	5	15.02
Disciplinary Barracks, Leavenworth, Kans.....	3	9.49				
Fort Ethan Allen, Vt.....	3	4.76				
Fort Wadsworth, N. Y.....	3	8.90	2	2.30	1	1.07
Hot Springs General Hospital, Ark.....	2	26.32				
Fort Sill, Okla.....	2	2.16	1	13.70	1	14.71
Fort McIntosh, Tex.....	2	5.48	1	2.85	3	2.96
Fort Winfield Scott, Cal.....	2	2.10	3	2.73	3	6.91
Fort Slocum, N. Y.....	2	1.71	4	3.11	3	2.05
Fort Logan, Colo.....	2	3.28	2	3.50	3	4.62

TABLE NO. 21.—*Tuberculosis (all) at Army stations, United States continental (excluding Alaska), 1916, compared with 1915 and 1914, officers and enlisted men—Con.*

	Admissions.					
	1916		1915		1914	
	Number.	Ratio per 1,000 of mean strength	Number.	Ratio per 1,000 of mean strength	Number.	Ratio per 1,000 of mean strength.
Columbus Barracks, Ohio.....	2	1.60	4	2.43	5	2.31
Walter Reed General Hospital, D. C.....	1	7.81	2	14.81	6	42.86
Fort Huachuca, Ariz.....	1	3.61	1	1.14	5	10.44
Fort Riley, Kans.....	1	2.41	2	4.22	3	4.57
Madison Barracks, N. Y.....	1	3.54	2	3.12	2	2.33
Fort H. G. Wright, N. Y.....	1	1.55	5	7.32	3	4.40
Fort Hancock, N. J.....	1	1.49	1	1.33	3	3.89
Fort Hamilton, N. Y.....	1	1.08	2	3.18	2	3.28
Fort Adams, R. I.....	1	1.94	3	5.04	.....	.....
Fort Ontario, N. Y.....	1	7.67	3	12.88	.....	.....
Washington Barracks, D. C.....	.....	.....	3	5.91	.....	.....
Plattsburg Barracks, N. Y.....	.....	.....	3	3.92	2	2.56
Fort Monroe, Va.....	.....	.....	3	2.22	2	1.77
Fort Baker, Cal.....	.....	.....	2	6.51	3	11.76
Fort Wayne, Mich.....	.....	.....	1	68.82	.....	.....
Fort Hunt, Va.....	.....	.....	1	7.87	.....	.....
Fort Mott, N. J.....	.....	.....	1	6.94	.....	.....
Fort Washington, Md.....	.....	.....	1	6.94	.....	.....
Fort Constitution, N. H.....	.....	.....	1	6.56	1	7.14
Fort Crockett, Tex.....	.....	.....	1	5.15	.....	.....
Fort Stevens, Ore.....	.....	.....	.....	.....	4	11.40
Fort Niagara, N. Y.....	.....	.....	.....	.....	3	10.56
Fort Moultrie, S. C.....	.....	.....	.....	.....	3	6.40
Fort McKinley, Me.....	.....	.....	.....	.....	3	4.78
Presidio of Monterey, Cal.....	.....	.....	1	2.42	3	3.91
5 stations not included above had 2 cases each in 1916.....	10	.....	.....	.....	.....	.....
10 stations not included above had 1 case each in 1916.....	10	.....	.....	.....	.....	.....
19 stations not included above had 1 case each in 1915.....	.....	.....	19	.....	.....	.....
4 stations not included above had 2 cases each in 1914.....	.....	.....	.....	.....	8	.....
13 stations not included above had 1 case each in 1914.....	.....	.....	.....	.....	13	.....
Border, field, miscellaneous.....	94	.....	53	.....	45	.....
Total.....	223	3.46	179	2.68	175	2.72

TABLE NO. 22.—*Occurrence of tuberculosis (all) among American troops, Army, year 1916, by years of service, enlisted men.*

	Years of service.						Total.
	First.	Second.	Third.	Fourth.	Fifth.	Sixth and over.	
United States, continental (excluding Alaska):							
Mean strength.....							61,410
Admitted.....	58	22	37	24	14	62	217
Ratios per 1,000 of mean strength.....							3.53
Duty.....	4	5	3	2	2	13	29
Died.....	4	1	2	1	1	5	14
Discharged on certificate of disability.....	22	6	10	9	3	11	61
Otherwise.....	.....	1	2	2	1	1	7
Remaining.....	28	9	20	10	7	32	106
Panama Canal Zone:							
Mean strength.....							6,783
Admitted.....	6	8	8	1	2	3	28
Ratios per 1,000 of mean strength.....							4.13
Duty.....	1	1	1	.....	.....	.....	3
Discharged on certificate of disability.....	.....	2	1	.....	1	1	6
Otherwise.....	1	.....	.....	.....	.....	1	2
Remaining.....	4	5	6	1	1	1	18

TABLE NO. 22.—*Occurrence of tuberculosis (all) among American troops, army, year 1916, by years of service, enlisted men—Continued.*

	Years of service.						Total.
	First.	Second.	Third.	Fourth.	Fifth.	Sixth and over.	
Philippine Islands:							
Mean strength.....							11,580
Admitted.....	4	17	7	4	2	17	51
Ratios per 1,000 of mean strength.....							4.40
Duty.....		1					1
Died.....						4	4
Discharged on certificate of disability.....	1	7		1		1	10
Otherwise.....			1		1	1	3
Remaining.....	3	9	6	3	1	11	33
Hawaii:							
Mean strength.....							8,476
Admitted.....	2	9	3	2	2	9	27
Ratios per 1,000 of mean strength.....							3.19
Duty.....		1				1	2
Died.....			1	1		2	4
Discharged on certificate of disability.....		2		1			3
Otherwise.....		1					1
Remaining.....	2	5	2		2	6	17
Mexico:							
Mean strength.....							8,049
Admitted.....	1	4	4	3		4	16
Ratios per 1,000 of mean strength.....							1.99
Duty.....		2		1		1	4
Died.....						2	2
Otherwise.....		1					1
Remaining.....	1	1	4	2		1	9
Transports:							
Mean strength.....							822
Admitted.....	1	1					2
Ratios per 1,000 of mean strength.....							2.43
Died.....		1					1
Remaining.....	1						1
China:							
Mean strength.....							1,321
Admitted.....	1	1					2
Ratios per 1,000 of mean strength.....							1.51
Died.....		1					1
Remaining.....	1						1
Total:							
Mean strength.....							99,186
Admitted.....	73	62	59	34	20	95	343
Ratios per 1,000 of mean strength.....							3.46
Duty.....	5	10	4	3	2	15	39
Died.....	4	3	3	2	1	13	26
Discharged on certificate of disability.....	23	17	11	11	4	13	79
Otherwise.....	1	3	3	2	2	3	14
Remaining.....	40	29	38	16	11	51	185

TABLE NO. 23.—*Undetermined fevers, 1916, by countries, officers, and enlisted men, including Philippine Scouts and Porto Rican troops.*

Diseases.	United States (continental), excluding Alaska.	Mexico.	Alaska.	Hawaii.	Philippine Islands.	Canal Zone, Panama.	China.	Porto Rico.	Army transports.	Total.
Febricula.....	92				71			4	9	176
Fever, simple, continued.....	183	202		3	22	22		34	1	467
Fever, type undetermined.....										
Ephemeral fever.....										
Total.....	275	202		3	93	22		38	10	643
Ratio per 1,000 of mean strength.....	4.27	24.21		.34	5.22	3.13		38.35	11.36	5.62

From the above table it will be noted that the admission rate for these fevers in the United States was 4.27 per 1,000 of mean strength. The same rate for 1915 was 1.65, that for 1914 was 1.49, and for 1913, 2.65 per 1,000. Porto Rico has the highest admission rate for this class of fevers, 38.35 per 1,000; Mexico comes next with 24.21 per 1,000. The rates for the United States, Hawaii, Philippine Islands, and Canal Zone are lower than the total rate for these fevers. It might be well to again state, as in previous reports, that in questions of doubt procedures are used in the laboratory diagnosis of typhoid and paratyphoid fevers so as to exclude any possibility of overlooking these two diseases.

MENTAL ALIENATION (ENLISTED MEN).

It is impracticable to compare the admission rate for this class of disturbances with the rate for diseases formerly classified and published under the term "insanity." The diseases included under the term "mental alienation" used in the present nomenclature, which was put into use January 1, 1912, include several conditions not taken into consideration under the term "insanity," such as defective and mental development, constitutional psychopathic state, hypochondriasis, and nostalgia. The case admission rate for mental alienation (all) for 1916 for the United States was 3.73 per 1,000, and the discharge rate 2.65, as compared with 3.04 per 1,000 for the admission rate and 2.54 for discharge rate during the year 1915. The admission and discharge rates for the entire Army for 1916 were 3.55 and 2.61 per 1,000, respectively.

ALCOHOLISM

The admission rate for alcoholism in the United States for the year 1916 was 12.33 per 1,000, which is lower than for the preceding year, when it was 13.07. It is exceedingly gratifying to note that there has been a steady decrease in this rate since 1907, when the rate was 36.09, before which year there was a steady increase for eight years. The rate for 1916 is the lowest on record in the Army since the year 1870. As it has been stated before, the rates given are not representative of the true amount of temperance existing in the Army, but as they are all calculated from similar data, i. e., the number of cases in which medical assistance intervenes, they are useful as indices of alcoholic excesses. There can be no doubt but that this remarkable decrease in the rates is properly attributable to the effect produced by the act of Congress in stopping the pay of officers and enlisted men when incapacitated for duty because of sickness due to drug addiction, alcoholism, or other misconduct.

Smallpox, 1916.

Rank and organization.	Age.	Station.	Date taken sick.	Date of successful vaccination.	Date of unsuccessful vaccination.	Disposition.	Length of service.	Date of enlistment.	Probable source of infection.	Previous attack.	Remarks.
Mexico: Major, Thirteenth Cavalry.	49	Cruces, Mexico.	1916. June 14			Transferred to El Valle, Mexico, and Columbus, N. Mex.	30 years.				Columbus, N. Mex., cured July 14, 1916.
American troops: Private, Company F, Ninth Cavalry.	28	Manila, P. I.	Feb. 10			Duty, Feb. 12, 1916.	7 years 9 months.				No information of vaccination found.
Philippine Scouts: Corporal, Fifty-first Company.	28	Agur Barracks, P. I.	Apr. 10	July 5, 1915, Agur Barracks, P. I.	Aug. 28, 1911.	Died Apr. 22, 1916.	6 years 9 months.		Through contact with civil population in Jolo and vicinity.	None.	
Private, Fifty-second Company.	22	do.	Apr. 15	Mar. 30, 1915, Agur Barracks, P. I.	None.	Duty, May 10, 1916.	1 year.		do.	do.	
Do.	23	do.	Apr. 17	July 17, 1915, Agur Barracks, P. I.	do.	Duty, May 31, 1916.	9 months.		do.	do.	
Do.	21	do.	Apr. 18	Nov. 18, 1915, Agur Barracks, P. I.	do.	Duty, May 10, 1916.	5 months.		do.	do.	
Private, Seventeenth Company.	22	do.	Apr. 22	June 26, 1915, Agur Barracks, P. I.	do.	Duty, May 16, 1916.	9 months.		do.	do.	
Private, Fifty-first Company.	24	do.	Apr. 27	Apr. 11, 1916, Agur Barracks, P. I.	May 26, 1912, protected.	Duty, May 22, 1916.	2 years 11 months.		do.	do.	
Private, Fifty-second Company.	21	do.	July 17	None.	July 10, 1916, Agur Barracks, P. I.	Duty, Aug. 14, 1916.	6 months.		do.	do.	
Private, Fifty-first Company.	23	do.	Aug. 22	Sept. 29, 1914, Agur Barracks, P. I.	Apr. 11, 1916, Agur Barracks, P. I.	Duty, Sept. 30, 1916.	1 year 11 months.		do.	do.	
Private, Second Company.	28	do.	Dec. 17			Duty, Jan. 13, 1917.	8 years 2 months.		do.	do.	Do.

SMALLPOX.

No cases of smallpox occurred within the United States proper during the year.

MEASLES.

During the year 1916, 1,247 cases of measles occurred in the Army in the United States, with 9 deaths and 2 discharges. In 1915 there were 555 cases, with 20 deaths and 8 discharges. The depots having the highest number of admissions for the year were Columbus Barracks, Ohio, with 400 cases and 7 deaths, and Jefferson Barracks, Mo., with 319 cases and 1 death. The mean strengths during the year at the above-mentioned depots were: Columbus Barracks, 1,331; Jefferson Barracks, 1,481.

The diversion of accepted applicants to other stations resulted in the disease assuming no greater proportions than shown at Columbus Barracks. With the advent of milder weather the change in habitat from the barracks to out-of-door life usually marks a decline in the incidence of the disease, which would tend to bear out the contention that crowding is a very material factor in the spread of this disease.

CEREBROSPINAL MENINGITIS.

Eighteen cases of this disease, with 9 deaths, occurred during the year 1916 in the United States. In 1915 there were 23 cases with 9 deaths.

INFLUENCE OF STATION.

The posts having the highest admission rates, from all causes, were: Forts Sam Houston, Tex., with a rate of 1,120.84; Oglethorpe, Ga., with a rate of 1,072.73; Crockett, Tex., 1,064.66; Greble, R. I., 1,003.45; and Bliss, Tex., 994.03.

The posts having the highest noneffective rate for the year 1916 were: Forts Bliss, Tex.; Huachuca, Ariz.; Sam Houston, Tex.; Plattsburg Barracks, N. Y.; and Crockett, Tex.; in the order named. The rates from all causes were 188.71, 81.68, 68.41, 36.94, and 33.55 per 1,000, respectively. The average number of days' treatment for each case was as follows: Forts Bliss, 69.48; Huachuca, Ariz., 51.76; Sam Houston, 22.34; Plattsburg Barracks, 17.96; Crockett, Tex., 11.53.

The five posts having the lowest admission rate, from all causes, during the year, were: Forts Casey, Wash., 315.48; West Point, N. Y., 353.57; Flagler, Wash., 386.04; Stevens, Oreg., 407.05; and Terry, N. Y., with 426.91 per 1,000.

The posts having the lowest noneffective rates, from all causes, with their rates, were: Forts Hamilton, N. Y., 8.88; West Point, 9.07; McIntosh, Tex., 11.51; Flagler, Wash., 12.54; Worden, Wash., 12.56 per 1,000. The average number of days' treatment for each case was 6.59, 9.39, 5.78, 11.89, and 9.79, respectively.

Of the recruiting depots Columbus Barracks, Ohio, the highest admission rate from all causes, 1,384.67, and Fort McDowell, Cal., the lowest, 841.05, per 1,000; Jefferson Barracks, Mo., had the highest average number of days' treatment for each case, 12.57, also highest

noneffective rate from all causes, 41.47 per 1,000, and Fort McDowell, Cal., the lowest, 4.71. The highest death rate occurred at Fort Logan, Colo., being 11.49 per 1,000, and the lowest at Fort Slocum, N. Y., 1.72.

The Western Department, as last year, had the lowest admission rate, 525.71 per 1,000, as compared with 556.47 for 1915, with the exception of the independent stations, which had a rate of 491.35 per 1,000, as compared with 508.43 per 1,000 for 1915. An increase is noted in the Eastern Department, whose rate for 1916 was 668.75, as compared with 654.32 per 1,000 for 1915. The rate for the recruit depots remains high, and is still higher than for 1915, being 1,124.89 for 1916, as compared with 1,070.17 per 1,000 for 1915.

The Western Department has the lowest noneffective rate, 10.67 per 1,000, for the year 1916, as compared with 11.82 for the independent stations, 16.12 for the Mexican border, and 18.03 for the Eastern Department.

The Western Department had the lowest death rate, 2.16 per 1,000 for 1916, as compared with 6.26 for 1915, and the Eastern, the Mexican border, the Central, and the Southern next in order with 2.84, 4.34, 7.82, and 12.65 per 1,000, respectively.

Tables Nos. 24 and 25 show the posts having the highest and the lowest ratios of admission and noneffectiveness in the United States as a whole.

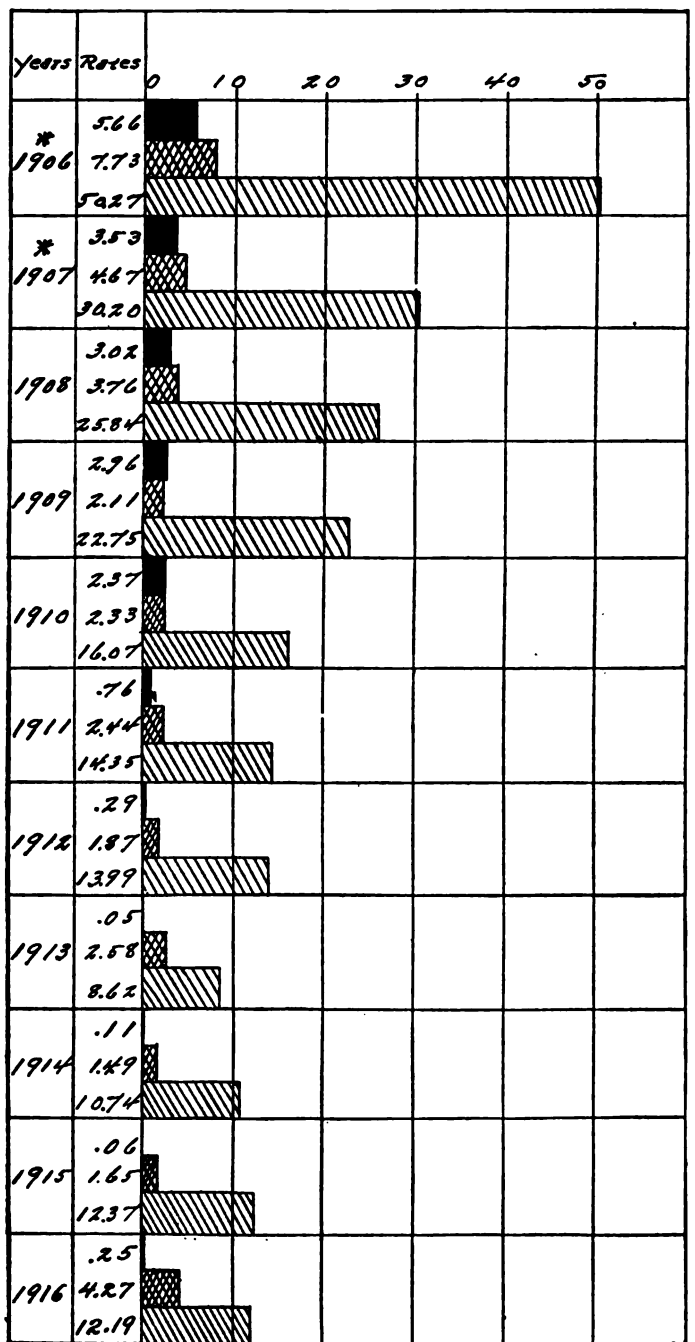
INFLUENCE OF RACE.

The colored troops (enlisted) had higher rates than the white for noneffective and discharges, being 100.52 and 31.36, as compared with 29.72 and 16.56 per 1,000, respectively, for 1916. The respective rates for 1915 were 31.26 and 22.96, as compared with 25.52 and 13.23. The admission rate for white troops was lower than for the colored, being 743.40, as compared with 890.23.

For venereal diseases the admission rate for the white troops was 90.34, and for the colored 156.82 per 1,000 for 1916; for alcoholism the rate for the white troops was 12.84, and for the colored 7.24; for tuberculosis (all kinds) for the white was 3.47, and for the colored 8.44; for bronchitis the rate for white was 36.98, and for colored 31.36; for diarrhea and enteritis the rate for white was 38.44, and for colored 22.92; and for tonsillitis, acute follicular, the rate for white was 48.13, and for colored 130.28. The relative prevalence of the other diseases in the two races with comparisons are shown in Table No. 7.

Chart R.—United States. Officers and men.

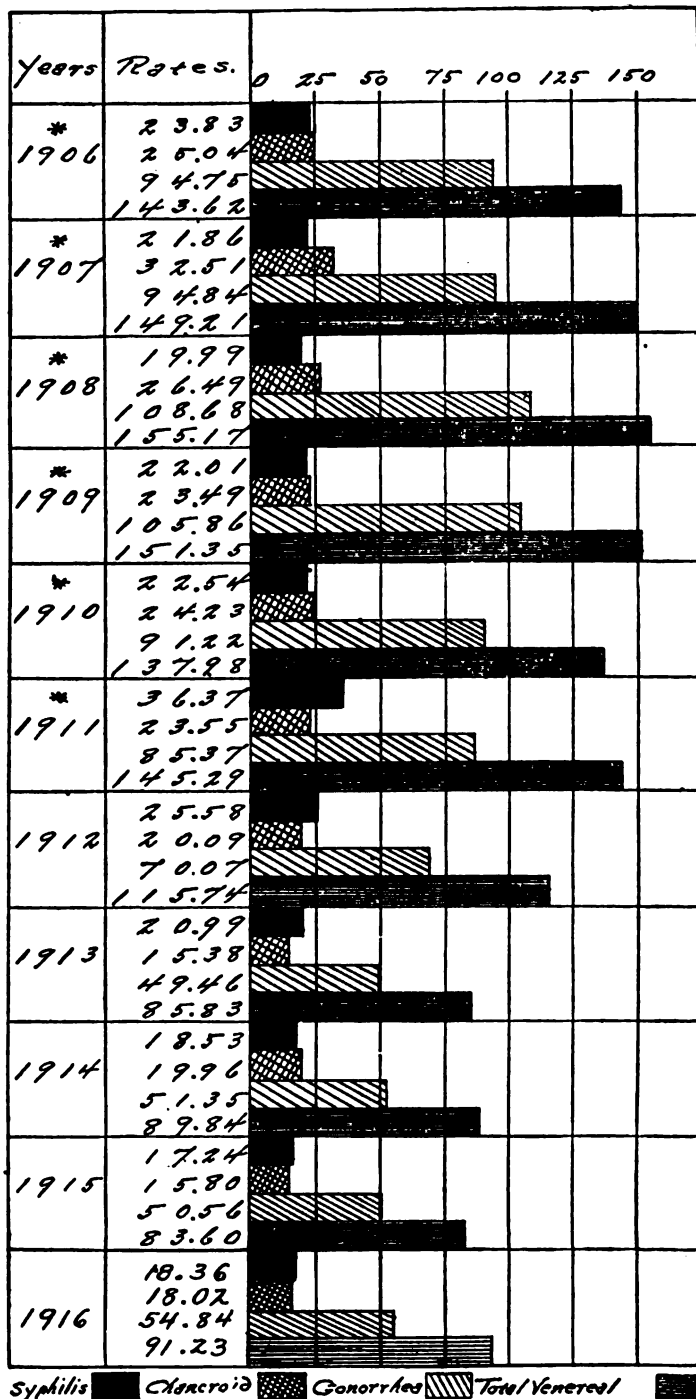
[Admission rates for typhoid fever, undetermined fever, and malarial fevers, years 1906-1916.]



Typhoid Fever ■ Undetermined Fevers ▨ Malaria ▩
 * Enlisted men. * Officers not included.

Chart S.—United States. Enlisted men.

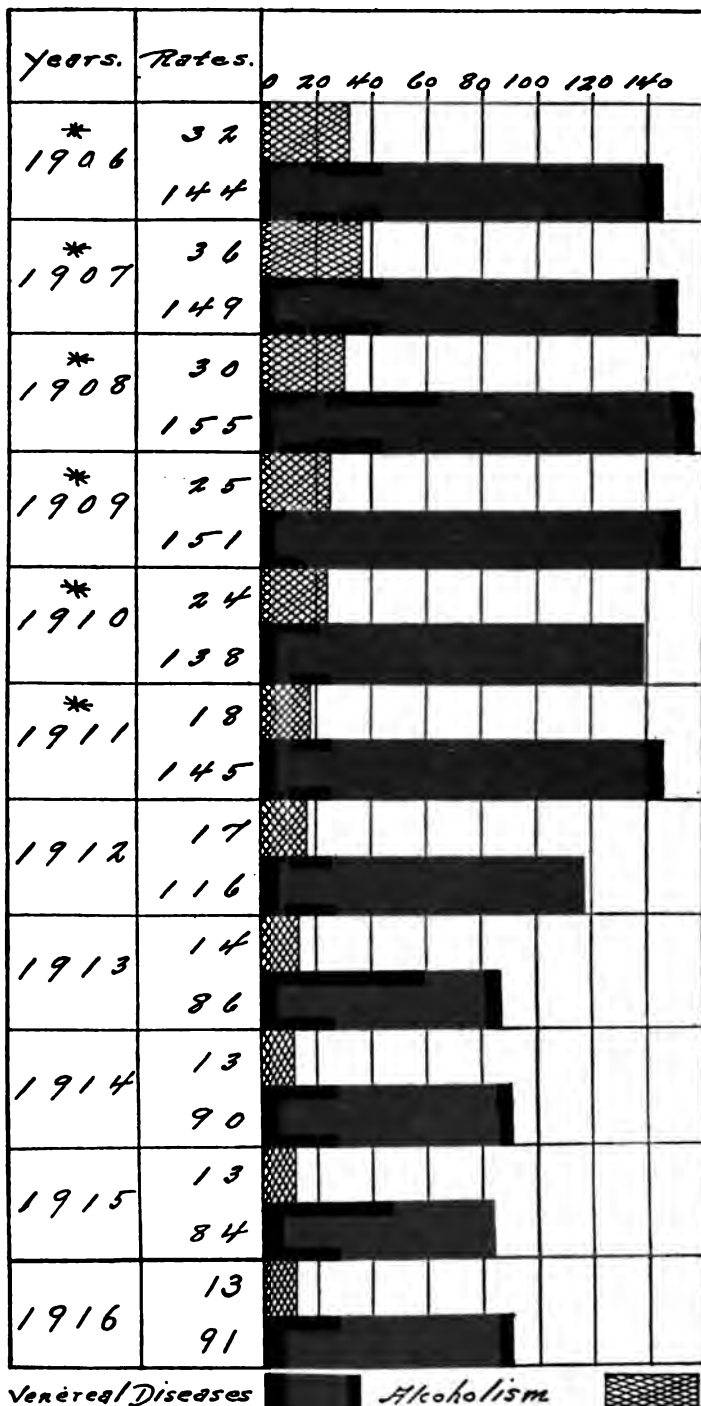
[Admission rates for syphilis, chancreoid, gonorrhea, and total venereal, years 1906-1916.]



* Readmitted cases deducted to correspond with figures for years preceding 1906, and 1912 to 1916.

Chart T.—United States. *Enlisted men.*

[Admission rates for venereal diseases and alcoholism, years 1906-1916.]

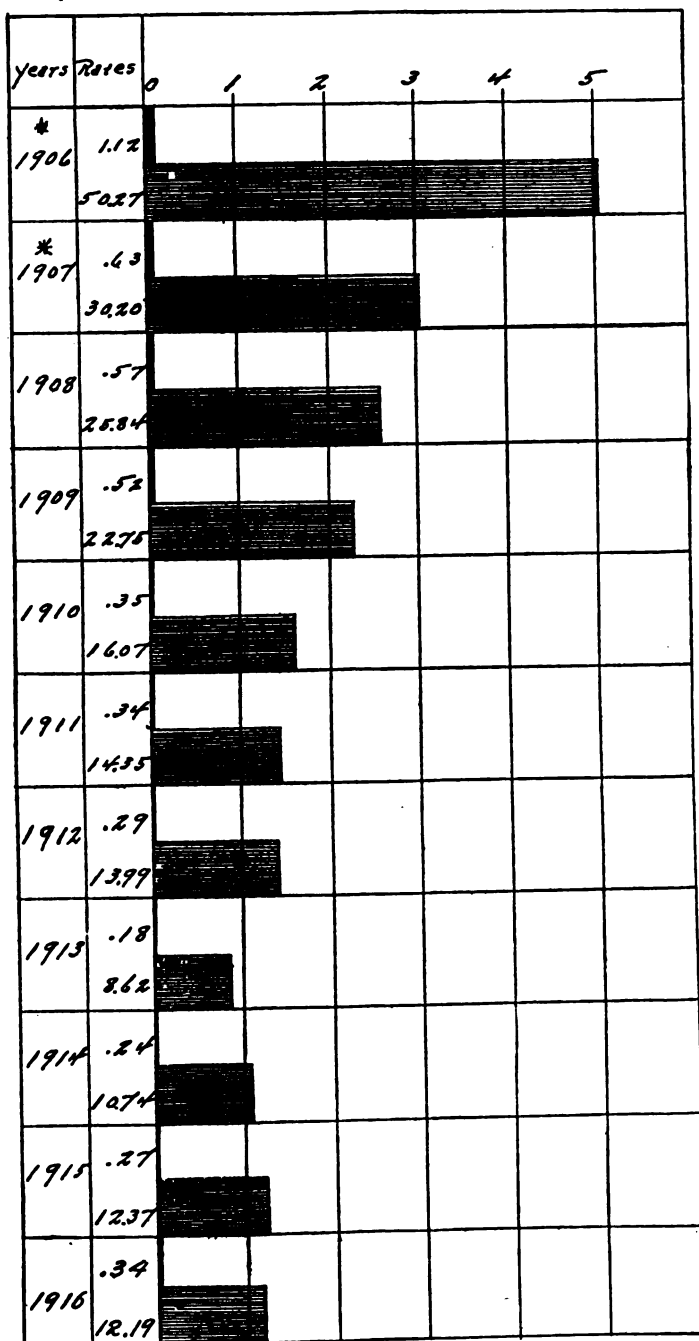


* Readmitted cases deducted to correspond with figures for years preceding 1906, and 1912 to 1916.

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Chart U.—United States. Officers and men.

[Admission and noneffective rates for malarial fevers, years 1906-1916.]



Admissions 
 * Enlisted men.

Noneffective 
 * Officers not included

Chart V.—Army. Officers and American and native troops.

[Admission and death rates for tuberculosis, years 1906-1916.]



TABLE NO. 2A.—*Posts of the United States having the highest admissions and noneffective rates per 1,000 of mean strength among those having a total strength of over 200 officers and men, year 1916.*

Ratio per 1,000 of mean strength.												Average number of days lost.			
Mean strength.	Ratio per 1,000 of mean strength.											Average number of days lost.			
	Admissions to sick report.		Discharged on certificate of disability.		Deaths.		Total losses.		Noneffective rate.			From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.		
	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Total.	In hospital.				
Posts in order of highest admission rates from all causes:	2,135	1,120.84	755.04	56.29	7.03	3.75	95.14	60.04	68.41	65.94	35.79	.....	25.04	13.10	17.35
	330	1,072.73	709.09	3.15	6.06	3.03	9.21	6.18	44.44	42.50	24.13	.....	16.26	8.85	12.48
	232	1,064.66	564.67	9.01	17.24	4.31	26.26	13.33	33.55	33.01	17.75	.....	12.26	6.50	11.50
	200	1,038.45	720.69	.....	.....	.....	.....	.....	24.96	20.90	19.17	.....	9.14	7.02	9.74
	1,341	994.03	638.33	42.03	27.59	16.40	94.85	58.43	138.71	136.27	100.68	.....	69.07	36.85	57.73
Posts in order of highest admission rates, excluding venereal diseases, injuries, etc.:	2,135	1,120.84	755.04	56.29	7.03	3.75	95.14	60.04	68.41	65.94	35.79	.....	25.04	13.10	17.35
	330	1,072.73	709.09	3.15	6.06	3.03	9.21	6.18	44.44	42.50	24.13	.....	16.26	8.85	12.48
	232	1,064.66	564.67	9.01	17.24	4.31	26.26	13.33	33.55	33.01	17.75	.....	12.26	6.50	11.50
	200	1,038.45	720.69	.....	.....	.....	.....	.....	24.96	20.90	19.17	.....	9.14	7.02	9.74
	1,341	994.03	638.33	42.03	27.59	16.40	94.85	58.43	138.71	136.27	100.68	.....	69.07	36.85	57.73
Posts in order of highest noneffective rates from all causes:	1,341	994.03	638.33	42.03	27.59	16.40	94.85	58.43	138.71	136.27	100.68	.....	69.07	36.85	57.73
	277	577.62	379.06	41.04	10.83	3.61	81.73	44.65	61.68	71.73	48.27	.....	29.90	17.67	46.61
	2,135	1,120.84	755.04	56.29	7.03	3.75	95.14	60.04	68.41	65.94	35.79	.....	25.04	13.10	17.35
	473	1,172.64	422.53	8.55	4.23	4.23	13.06	13.06	34.94	34.09	17.75	.....	13.28	7.00	14.66
	232	1,064.66	564.67	9.01	17.24	4.31	26.26	13.33	33.55	33.01	17.75	.....	12.26	6.50	11.50

Posts in order of highest noneffective rates excluding venereal diseases, injuries, etc.	1, 241	994.08	638.33	69.26	42.02	27.59	16.40	94.85	53.43	188.71	194.27	101.68	.....	69.07	69.48	34.35	57.73
Fort Bliss, Tex.	1, 277	577.02	370.06	70.60	41.04	10.83	3.61	81.73	44.65	81.05	75.73	46.27	.....	29.90	51.76	17.67	46.61
Fort Huachuca, Ariz.	2, 135	1,120.84	753.04	83.11	54.26	7.08	3.75	95.14	60.04	68.41	65.94	35.79	.....	26.04	22.34	13.10	17.35
Fort Sam Houston, Tex.	2, 233	862.24	703.90	24.79	26.79	8.62	8.62	35.41	35.41	33.41	30.63	25.10	.....	12.28	13.70	9.19	12.99
Fort D. A. Russell, Wyo.	350	1,072.73	704.06	3.15	3.15	6.06	3.03	9.21	6.18	44.44	42.80	24.13	.....	16.26	15.16	8.85	12.48
Fort Oglethorpe, Ga.																	

TABLE No. 25.—*Posts of the United States having the lowest admission and noneffective rates per 1,000 of mean strength among all those having a total strength of over 200 officers and men, year 1916.*

Mean strength.	Ratio per 1,000 of mean strength.										Average number of days lost.	
	Admissions to sick report.		Discharged on certificate of disability.		Deaths.		Total losses.		Noneffective rate.		From all causes.	
	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.
Posts in order of lowest admission rates from all causes:												
336	315.48	196.43	9.12	6.10	2.38	1.19	9.12	6.10	12.57	9.99	4.60	14.58
340	333.57	260.00	9.74	8.34	2.06	1.19	12.12	9.53	9.07	6.79	3.23	9.39
272	386.04	288.97	8.80	8.80	3.08	3.08	7.48	7.48	12.64	10.47	4.89	11.89
312	407.06	243.59	9.74	8.34	2.38	1.19	12.12	9.53	12.35	11.64	4.89	12.01
340	408.78	267.50	4.86	4.86	4.09	4.09	9.54	9.54	13.73	13.51	5.08	11.77
Posts in order of lowest admission rates, excluding injuries, etc.:												
336	315.48	196.43	9.12	6.10	2.38	1.19	9.12	6.10	12.57	9.99	4.60	14.58
272	386.04	288.97	8.80	8.80	3.08	3.08	7.48	7.48	12.64	10.47	4.89	11.89
312	407.06	243.59	9.74	8.34	2.38	1.19	12.12	9.53	12.35	11.64	4.89	12.01
340	408.78	267.50	4.86	4.86	4.09	4.09	9.54	9.54	13.73	13.51	5.08	11.77
Posts in order of lowest noneffective rates from all causes:												
505	468.07	354.45	14.31	14.31	1.98	1.98	16.29	16.29	8.83	8.65	3.25	6.09
340	383.57	260.00	9.74	8.34	2.38	1.19	12.12	9.53	9.07	6.79	3.23	9.39
365	738.77	468.50	3.80	3.80	24.09	24.09	34.09	34.09	11.51	10.10	4.21	6.78
272	386.04	288.97	8.80	8.80	3.08	3.08	7.48	7.48	12.64	10.47	4.89	11.89
699	468.48	345.86	19.48	16.31	8.13	1.98	23.88	17.77	12.66	13.13	4.60	9.79
Posts in order of lowest noneffective rates, excluding injuries, etc.:												
336	315.48	196.43	9.12	6.10	2.38	1.19	9.12	6.10	12.57	9.99	4.60	14.58
272	386.04	288.97	8.80	8.80	3.08	3.08	7.48	7.48	12.64	10.47	4.89	11.89
312	407.06	243.59	9.74	8.34	2.38	1.19	12.12	9.53	12.35	11.64	4.89	12.01
340	408.78	267.50	4.86	4.86	4.09	4.09	9.54	9.54	13.73	13.51	5.08	11.77
699	468.48	345.86	19.48	16.31	8.13	1.98	23.88	17.77	12.66	13.13	4.60	9.79
Posts in order of lowest noneffective rates, excluding injuries, etc.:												
336	315.48	196.43	9.12	6.10	2.38	1.19	9.12	6.10	12.57	9.99	4.60	14.58
272	386.04	288.97	8.80	8.80	3.08	3.08	7.48	7.48	12.64	10.47	4.89	11.89
312	407.06	243.59	9.74	8.34	2.38	1.19	12.12	9.53	12.35	11.64	4.89	12.01
340	408.78	267.50	4.86	4.86	4.09	4.09	9.54	9.54	13.73	13.51	5.08	11.77
699	468.48	345.86	19.48	16.31	8.13	1.98	23.88	17.77	12.66	13.13	4.60	9.79

Posts in order of lowest non-effective rates, excluding injuries, etc.

West Point, N. Y.	840	353.57	260.00	9.74	8.34	2.38	1.19	12.12	9.53	9.07	6.79	5.30	.....	3.32	9.39	1.94	7.76
Fort McIntosh, Tex.	346	728.77	468.50	.....	.....	24.66	3.22	24.66	8.22	11.51	10.10	5.77	.....	4.21	5.73	2.11	4.51
Fort Hamilton, N. Y.	508	468.07	354.45	14.31	14.31	1.98	1.98	16.29	16.29	8.88	5.65	6.10	.....	3.26	6.59	2.23	6.59
Fort Lawton, Wash.	282	710.52	458.57	.....	.....	3.97	.....	3.97	.....	16.87	16.53	6.74	.....	6.10	8.59	2.47	5.76
Fort Flagler, Wash.	272	398.04	238.07	3.50	3.50	3.68	3.68	7.48	7.48	12.54	10.47	6.70	.....	4.56	11.89	2.47	10.55
Recruit depot																	
Columbus Barracks, Ohio	1,331	1,354.67	1,042.82	14.58	13.81	9.02	9.02	23.60	22.83	35.06	33.97	25.17	.....	12.83	9.27	9.21	8.83
Fort Logan, Colo.	606	1,299.29	952.38	18.64	16.98	11.49	6.57	30.13	23.52	30.29	34.46	23.46	.....	13.26	10.46	8.59	9.02
Fort Leavenworth, Mo.	1,481	1,207.28	836.60	22.04	19.97	2.70	1.35	24.74	21.32	41.47	41.20	27.31	.....	15.18	12.57	9.99	11.04
Fort Slocum, N. Y.	1,162	878.66	620.48	25.55	23.79	1.72	1.86	27.37	24.65	20.32	20.13	13.01	.....	7.44	8.46	4.76	7.67
Fort McDowell, Cal.	960	841.05	615.70	1.07	1.07	4.21	1.06	5.28	2.12	4.71	3.55	3.80	.....	1.73	2.05	1.39	2.26

TABLE NO. 26.—*Influence of disease on enlisted men, American troops, serving in the United States, by arms of service, for year 1916.*

	Mean strength.	Admitted.	Discharged on certificate of disability.	Died.	Constantly non-effective.	Ratio per 1,000 of mean strength.			
						Admitted.	Discharged on certificate of disability.	Died.	Constantly non-effective.
Infantry.....	14,730	12,472	625	102	537.19	745.49	37.36	6.19	22.11
Cavalry.....	8,782	7,846	244	66	354.41	389.42	27.78	7.52	40.68
Coast Artillery.....	12,909	9,459	280	62	264.89	675.09	29.69	4.43	28.07
Field Artillery.....	2,471	2,158	95	19	117.27	929.82	27.27	5.47	33.79
Engineers.....	827	811	82	5	56.14	374.86	58.10	5.20	60.56
Signal Corps.....	1,656	250	4	5	11.95	547.73	6.26	6.26	18.75
Hospital Corps.....	2,736	616	24	19	27.20	523.23	22.72	4.73	25.05
All others.....	12,067	8,377	187	66	212.22	694.21	15.60	5.47	25.87
Total.....	61,410	45,774	1,625	348	774.42	745.38	29.46	5.67	28.99

TABLE NO. 27.—*Periodic prevalence of epidemic diseases and pneumonia in the United States; also the number of gunshot cases and killed in action, by months.*

Months.	Typhoid.		Paratyphoid.		Small-pox.		Measles.		Diphtheria.		Cerebro-spinal meningitis.		Pneumonia.		Gunshot wounds.		Killed and wounded in action.	
	No. 1.		No. 2.		No. 12.		No. 14.		No. 17.		No. 108.		No. 208.		No. 306.		No. 693-4.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1916.																		
January.....	2	1					31		5				15	3	15	10		1
February.....	1	1					52		1		1	1	14	1	12	6		
March.....			1				55		4		1		15	2	12	4	1	1
April.....							113	1	2		4	2	11	3	24	6		
May.....			2				179						12	1	26	12		
June.....	1						92		1		2		9		40	7	6	4
July.....	3		1				126	2	1		1	1	8		25	3		
August.....	1		2				86		1		1	1	4	2	18			
September.....			8				183	1	5				8	3	27	9		
October.....	7	1	7				120		4		1	1	12		28	6		
November.....	1		1				74	4	4		5	2	15	3	23	9		
December.....							126	1	5		2	1	40	5	30	9		
Total.....	16	3	22				1,247	9	33		18	9	164	24	281	80	7	6

GENERAL SANITATION.**CONTROL OF COMMUNICABLE DISEASES.**

1. In carrying out effective sanitary measures in the military service, particular attention should be paid to certain of the communicable diseases. The following notes are published for the information and guidance of medical officers and others whose duties impose upon them the prevention of disease among the troops of the United States.

2. The practice of modern sanitary science may be summarized in the statement that its main object is to seek the sources amongst infected persons and animals whose excreta or other constituents or body contents enter the bodies of other persons. Its main postulate is that the routes of infection are simply the routes of infected bodily discharges, which are the routes of ordinary uninfected discharges in ordinary life.

3. The influence of environment depends upon whether or not it permits of or necessitates the exchange of human discharges. Overcrowding, if combined with lack of discipline and order and lack of facilities for washing, especially of the hands, contributes to the spread of infection, not of itself, but only if infection be introduced into the community. Overcrowding, if there is discipline and intelligence with proper precautions to avoid the exchange of excreta, does not spread infection even if it be introduced.

4. Water, food, flies, and milk are the main public routes of gastrointestinal infection from individuals to group, and from group to group. Contact is the great private route from individual to individual. Contact infection radiates directly from the infected person through nose, mouth, bladder, and bowel discharges. The great route of exchange is by smears on the hands, although mouth spray and sputum also act in many diseases. If we classify the chief communicable diseases of the temperate zone by their principal routes of infection we plainly see that of all the routes, contact alone is common to all diseases.

5. A program of military sanitation should aim—

(a) To secure to each individual continuously the highest possible health.

(b) To secure to each, instruction, and training in personal conduct in order to avoid receiving into his body the discharges of infected persons.

(c) To secure to each specific immunization.

These three measures place the abolition of infection directly upon the individual. The three following place the abolition of infection upon experts who deal directly with the infection itself:

(a) The supervision of the four great public routes of infection to exclude all bodily discharges from them.

(b) The supervision of all known infectious cases to exclude their discharges from all routes.

(c) The sociological supervision of all infected persons.

TYPHOID FEVER.

Cause.—The bacterial cause of typhoid fever is a rod-shaped microorganism or germ called the typhoid bacillus.

Nature.—Typhoid fever is chiefly a filth disease, and is widely distributed over the world. The typhoid bacillus is present in the feces and urine of all persons who are ill with the disease and of certain persons who have long recovered from it. The latter persons are referred to as carriers of the bacilli, or typhoid carriers.

Means of communication.—Lack of care in the disposal of the excreta and want of personal cleanliness are the chief sources of the disease. A faulty method of disposing of feces and urine may lead to contamination of drinking water, milk, or other food directly or through the agency of flies.

Human excrement should be properly disposed of, breeding places of flies destroyed, food supplies protected, and persistent warfare against the fly unceasingly carried on.

Sources of the disease in military camps.—The commonest mode of infection in military establishments is through personal contact, especially by means of the hands, with individuals who harbor the typhoid bacillus. Sometimes this contact is direct, sometimes indirect. About 60 per cent of the cases are believed to arise in this manner.

The direct instances are those in which infection follows upon personal association with an infected person or carrier. The indirect ones are such as from clothing, bedding, water, milk, or other food, and the dishes or drinking cup of an infected person.

The carrier is therefore, because unsuspected and more insidious, a greater source of danger than the sick person. The medical officer should be on the alert to suspect and detect him. Once detected, he requires particular care in respect to isolation and treatment. The carriers who handle or prepare food are especially dangerous. In order to avoid increase in carriers, no patient convalescent from typhoid fever should be released until three successive examinations of the stools and urine, collected at six-day intervals, have shown him to be free from typhoid bacilli.

Personal precautions to be observed.—From what has been stated it is obvious that habits of personal cleanliness are to be encouraged in every way. Bathing should be frequent, the washing of the hands before eating and after visiting the latrine should be obligatory, and due attention paid to the laundering of underclothing. The eating and other utensils used by persons sick of typhoid fever and carriers of the typhoid bacilli should be promptly sterilized.

PARATYPHOID FEVER.

Causes.—Like typhoid fever, paratyphoid fever is produced by bacteria. Two bacilli, known as paratyphoid A and B, are its bacterial causes.

Nature.—Paratyphoid fever, like typhoid fever, is a filth disease and as such is to be dealt with precisely as is typhoid fever. In addition, the paratyphoid bacilli B occur in animals and may be present in their flesh. Hence, such infected foods when improperly cooked or preserved may give rise to paratyphoid fever. This form

of the disease constitutes one of the kinds of food or meat poisoning. Healthy carriers of the paratyphoid bacillus also exist.

Vaccination.—Typhoid vaccination does not protect against paratyphoid infection. It is therefore necessary to vaccinate against paratyphoid as well as against typhoid fever. For this purpose a vaccine is supplied containing both the A and B bacilli. It is injected in the same manner as the typhoid bacillus vaccine.

Distinction between typhoid and paratyphoid fever.—These two kinds of fever are often indistinguishable clinically. But laboratory test methods serve to distinguish them from each other. Every case of undetermined fever, and every case of clinical typhoid or paratyphoid fever should have a blood culture made not later than the fifth day, this culture to be examined at an Army laboratory, unless specific authority to do otherwise is given by the Surgeon General's Office. A subculture from any positive blood culture will be sent to the nearest department laboratory for confirmation and record.

Typhoid and paratyphoid vaccination.—All persons entering the military service will be vaccinated against typhoid and paratyphoid fevers, under the direction of a medical officer, as soon as practicable after entrance. Exception may be made in the case of persons over 45 years of age, and when the occurrence of a previous attack of typhoid fever or a complete course of vaccination within three years is established to the satisfaction of the responsible medical officer.

Officers under 45 years of age will be revaccinated after three years, and enlisted men on reenlistment.

Vaccination will consist of a series of three injections given exactly as in the first series.

Recruits will be vaccinated at places of enlistment, unless, because of special assignment or other reason, the men are not to remain at the station long enough to allow the completion of the course, in which event the vaccination will be completed immediately after they join the organizations or stations to which they are assigned. On the service record of every recruit or reenlisted man will be noted "Typhoid and paratyphoid vaccination completed (date)-----," or "Typhoid and paratyphoid vaccination not administered," as the case may be. In the latter case, company and detachment commanders will see that the vaccination is begun immediately after the men join the organizations or stations to which assigned.

Civilian employees who are subject to field service of any kind, including those on transports and in the mine-planter service, will be vaccinated as soon as employed.

Records will be kept of all officers, soldiers, and civilians in the military service who receive the antityphoid and antiparatyphoid vaccinations, giving the dates of vaccination.

The following directions for vaccination against typhoid and paratyphoid fevers are published here for the information of medical officers:

The first dose is $\frac{1}{2}$ c. c. ($7\frac{1}{2}$ m.); the second and third are each 1 c. c. (15 m.). An interval of at least seven days should elapse between doses. This interval may be extended to the fourteenth day in case of necessity.

The site of inoculation is the arm at the insertion of the deltoid muscle. If for any reason this site can not be used, the needle may be introduced into the back over the lower portion of the scapula,

or in the chest below the clavicle. The dose is to be given subcutaneously and not into the muscles nor into the skin. The arm should be cleansed as for any other operation. Tincture of iodine painted over the dry skin, before and after the injection, has proved satisfactory.

The ampule should be washed off in an antiseptic solution and opened after making one or more cuts near the top with a file. The vaccine can be drawn out of the container with a syringe, or it may be emptied into a shallow glass dish, such as a saltcellar, which has been sterilized by boiling.

The syringe and needle should be sterilized by boiling in 2 per cent soda solution. To insure perfect sterilization, draw the piston out to its full length, or remove it entirely so that the barrel is full of water during the boiling. A fresh needle should be used for each man, or if one needle must be used on two or more men, it should be resterilized, before each injection.

No person should be vaccinated who is not perfectly healthy and free from fever. The temperature should be taken in doubtful cases and the urine should be examined; if fever or any other symptoms of illness are present, the procedure should be postponed. These precautions are necessary to avoid vaccinating men who may be in the incubation stage of typhoid or other fever. Neither beer nor alcohol in any other form should be drunk on the day of treatment. Vaccination is well borne by children and by women, using doses proportionate to the body weight, taking 150 pounds as the unit. Women should not be given the first dose during or near the time of the menstrual period.

The most suitable time for the administration is about 4 o'clock in the afternoon, as the greater part of the reaction is then over before morning. There is usually some headache and malaise, and a local reaction consisting of a red and tender area about the size of the palm of the hand, and sometimes tenderness in the axillary glands. It is best not to require any duty for 24 hours, nor to permit active exercise, such as long rides or walks. Rarely, marked general reactions occur—headache, backache, nausea, vomiting, herpes labialis, occasionally albuminuria, and some loss of body weight. The number of such reactions is exceedingly small, and regardless of their severity they as a rule disappear inside of 48 hours.

The Widal reaction is positive after typhoid vaccination, appearing in about 10 days after the first dose, and it remains positive for six months to a year. This fact must be considered in diagnosing typhoid in vaccinated persons. They may give a positive Widal regardless of the nature of the illness, and reaction is frequently of no assistance in diagnosis.

The vaccines should be stored in an ice box. They will keep for four months and perhaps longer when stored at low temperatures in the dark.

A fresh ampule should be opened for each day's use. Any vaccine remaining unused in an opened ampule at the end of the day should be thrown away. The only vaccines used will be those obtained from the Army Medical School, and will be furnished on request by information slip or by telegram to the commandant. When for any reason a larger stock is on hand than appears to be needed,

directions as to disposition will be obtained from the commandant, Army Medical School, upon application to him directly, stating date of receipt of the vaccine. Stock over four months old will be destroyed when a new supply has been received.

CHOLERA.

Cause.—The bacterial cause of cholera is a comma-shaped bacillus known as the comma or cholera bacillus.

Nature.—Two main forms of cholera are distinguished. In one type of the disease large epidemics break out more or less suddenly. In these cases the cholera bacillus is contained in the drinking water. In the other form of the disease the cases occur separately and occasionally; they arise from contact with other cases of cholera, with cholera bacillus carriers, or from filth contamination by flies, as in the manner of spread of typhoid fever.

The cholera bacillus breeds in the intestine of man and escapes with the intestinal discharges. Gaining access to water supplies, it survives there for a time. Upon the hands, clothing, etc., it may be carried to healthy persons by contact. In the cholera patient only the intestinal discharges contain the bacilli.

Prevention.—The control of the drinking water is imperative to avoid water-borne epidemics. The cleansing of the hands, disinfection of clothing, bedding, eating utensils, etc., are necessary to prevent contact infection. The discovery and isolation of carriers, who in infected localities may constitute from 5 to 10 per cent of the population, should be assiduously attended to. Carriers are an especial menace when they are engaged in the handling and preparation of food. Should cholera appear, the things to be especially kept in mind are:

- (1) Close watch over the persons who have to do with the handling of food.

- (2) The safeguarding of water and milk. The latter should always be boiled before use.

- (3) The use only of food recently cooked.

- (4) The screening of kitchen and mess halls.

- (5) The reduction of flies by trapping and killing, and the destruction of their breeding places.

DYSENTERY.

Causes and nature.—Dysentery or inflammation of the large intestine is caused by two classes of microorganisms, an amoeba and certain bacteria. The former gives rise to amoebic, the latter to bacillary dysentery. The bacterial or bacillary form of dysentery is more widely distributed over the world than the amoebic. While the former is found in all climates, the latter is chiefly restricted to warm countries. But persons suffering from amoebic dysentery may carry the disease from a warm to a cold climate.

Sources of infection.—The amoebae and bacilli which cause dysentery are contained in the intestinal contents and are discharged with them. They are, therefore, subject to the same manner of distribution as are the typhoid bacilli and the preventive measures to be

employed are identical with those employed in typhoid fever. It may be well, however, to emphasize the common occurrence of carriers of dysentery bacilli and amoeba among exposed and recovered cases, and the necessity of enforcing habits of personal cleanliness and other related measures to control the disease.

Diarrhea.—In addition to dysentery, slighter and nondysenteric forms of intestinal trouble are more or less common. As the result of chill and indiscretion in diet, diarrhea, griping, and even bloody stools may arise. But any case of persistent diarrhea in which blood and mucus are being discharged should be regarded as suspicious and submitted to a laboratory examination in order to determine whether it may be dysentery. The amoebae are searched for by direct microscopical examination; the bacilli may be obtained in culture, or an agglutination test made with the patient's blood to determine their presence.

THE INTESTINAL GROUP OF DISEASES.

1. Typhoid and paratyphoid fever, cholera, and amoebic and bacillary dysentery form a group of intestinal infections in which the causative micro-organisms are discharged with the excreta and gain access to healthy persons through the mouth. The general principles of their prevention are practically identical. The first effort made should be to destroy the infectious agents at the source, namely, in the discharges from the intestine. The next effort should be to control the water and food supply and the personal habits of the men, so that any of the micro-organisms which escape destruction may not find their way into the digestive tract in a living condition.

2. No man should be employed as cook or handler of food or water who is a carrier of *B typhosus*, *B paratyphosus* "A" or "B," or cysts of *entamoeba histolytica*.

3. Stools of all cooks and food handlers (including handlers of water and drivers of water and ice wagons) will be examined for typhoid, paratyphoid "A" and "B", and dysentery bacilli, and for cysts of *entamoeba histolytica*. In case of enlisted men, notation of positive findings should be made on the service record.

EPIDEMIC MENINGITIS.

Names.—Epidemic meningitis, or cerebrospinal meningitis, or cerebrospinal fever is one disease. In certain epidemics hemorrhages into the skin are common; because of this fact the disease is also called spotted fever.

Cause.—The bacterial cause of epidemic meningitis is a diplococcus called meningococcus. It is present in the inflamed membranes of meninges about the brain and spinal cord and within the ventricles of the brain of those ill of the disease. It is also present upon the mucous membranes of the nose and throat of the ill, and even of the well, who act as healthy carriers of the diplococcus.

Sporadic cases.—Epidemic meningitis has not been absent from this country as a whole in many years. The severe epidemics have practically disappeared, but occasional or sporadic cases have never-

theless continued to arise. From time to time groups of cases or small local epidemics have also appeared.

Carriers.—The healthy carriers of the meningococcus are more numerous than the cases of the disease which arise. The persistence of the sporadic cases indicates, therefore, the continued existence of such carriers in the general population. The assembling of large groups of men from various parts of the country is certain to introduce carriers, and the close association of the carrier with other persons is as certain to lead to the appearance of cases of epidemic meningitis.

Mode of infection.—Infection with the meningococcus takes place by way of the mucous membrane of the nose and throat. Even when meningitis does not arise the carriers harbor the diplococcus upon those mucous membranes. They are present also in their secretions and gain access to others through coughing, sneezing, hawking and spitting, and through contact of the hands contaminated with the secretions.

Sources of danger.—The ill patient is a source of danger only to his attendants, because he is kept isolated in bed. To reduce this danger to a minimum every precaution should be taken to disinfect or destroy the discharges from the nose and throat. This is necessary primarily in the interest of the attendants—doctors and nurses—and secondarily, in the interests of others, since doctor or nurse may be converted into a carrier.

The chief danger to others is the healthy carrier, because he is not suspected or isolated and moves about freely. He can be detected by means of a bacteriological examination, and having been detected, methods exist for ridding the mucous membranes of the diplococcus.

The occurrence of a case of epidemic meningitis in a barrack, tent, or mess is the signal for the bacteriological examination of all the men in this group. Until this is done, the men should not be permitted to move about freely. All those not found to be carriers can be at once released. The others are released as soon as they become meningococcus free. Likewise the convalescent patient is not released until a bacteriological examination has shown the mucous membranes of the nose and throat to be free of the meningococcus.

Varieties of cases.—Two main clinical varieties of epidemic meningitis occur. They are called ordinary and fulminating or explosive. In the former the symptoms come on and develop gradually, and death or recovery is a matter of one or several weeks. In the latter the symptoms appear suddenly and quickly become alarming, and death may result in a few hours and usually does occur within 36 hours. The greatest number of recoveries occur among the ordinary cases, but recovery has been observed even among the fulminant ones. Recovery from both is now more frequent as the result of the use of the antimeningococcic serum.

Prevention.—No certain means of prevention of epidemic meningitis is known except the detection and removal of carriers of the meningococcus and the isolation of cases of the disease. The incidence of the disease is, however, influenced by hygienic conditions. The greatest number of cases tends to occur in the winter when people are much indoors and ventilation is deficient. In the spring, summer, and autumn, when they live less within doors, fewer cases

arise. Hence, the appearance of the disease in camps is an indication for better separation of the inmates. The less they are in intimate contact, the smaller the danger from coughing, hawking, and spitting except under conditions in which the secretions can be caught, as in a handkerchief. Cleanliness of person, especially of the hands, is also a safeguard.

Treatment.—The treatment most relied upon consists in the injection into the membranes of the spinal cord and brain of the anti-meningococcic serum. This is done by means of lumbar puncture, a certain quantity of the cerebrospinal fluid first being removed. This fluid, which normally is perfectly clear, becomes turbid or purulent as a result of the infection and contains the meningococcus and leukocytes and other cells. The diplococci are partly within and partly without the leukocytes. Removal of the cerebrospinal fluid is of benefit because it withdraws a certain number of meningococci, but it also reduces the pressure within the ventricles of the brain, which is of value. The antimeningococcic serum acts directly upon the diplococci, destroys them or prevents their multiplication. Hence, it is definitely curative.

The serum acts only as long as it is within the meninges or membranes of the spinal cord and brain, and as it escapes into the blood its injection must be repeated. The rule is to repeat the injection every 24 hours for two or three or more days. In severe cases it has been found of advantage to repeat the injection every 12 hours. The detailed methods of employing the serum and of treating carriers are given in a special circular.

MALARIA.

Cause.—Malaria is caused by a microorganism (*plasmodium malariae*) which gains access to the body through the bites of mosquitoes belonging to the genus *Anopheles*.

The predisposing causes of the disease are those that favor the development of mosquito life.

On account of the nocturnal habits of the malaria-bearing mosquitoes, the disease is more likely to be contracted at night.

Prevention.—Camps should not be located near swamps, or in places where standing water favors the development of the mosquito. Every precaution will be taken to destroy breeding places by draining and filling, or by oiling them and by the cutting away of all grass or undergrowth for a distance of 200 yards about camps and habitations in order that the adult mosquitoes may not find lodgment and protection.

In certain conditions the use of preventive doses of quinine may be required, and administered by order under the supervision of the medical officer. All cases of malaria will be promptly isolated for treatment and protected from the attack of mosquitoes.

(See also par. 192-194, Manual for the Medical Department.)

YELLOW FEVER.

Is transmitted by the bite of the yellow fever mosquito (*stegomyia calopus*).

Yellow fever is essentially a disease of the Tropics and its existence is dependent upon the distribution of this single species of mosquito,

small and silver-striped, active principally at evening time, and breeding generally in small accumulations of water close to the habitations of man.

The prevention of this disease, as of malaria, depends chiefly on the destruction of the mosquito and its breeding places, the proper protection against the bites of the insects at all times, and the early isolation, protection, and treatment of each case of yellow fever as soon as suspected.

TYPHUS FEVER.

Definition.—Typhus fever is an acute infectious disease, caused by a specific germ, characterized by sudden onset, high fever, marked nervous symptoms, and macular eruption. It has prevailed in Mexico and in eastern Europe since the middle of the sixteenth century.

Transmission.—Typhus fever is transmitted to man only by the bite of the louse, which infests the clothing and body of the victims.

Prevention.—The prevention of typhus fever depends, therefore, upon personal cleanliness and the avoidance and destruction of infected lice.

Frequent bathing and cleansing of clothing, with repeated inspections of garments, particularly the seams where the eggs of the louse are deposited, are imperative precautions.

The clothes louse lays its eggs among and attached to the fibers of clothes with a special preference for seams and linings, a point to be remembered in the destruction of lice.

The eggs are the size of a pin-point, yellowish white in color, goblet-shaped, and attached at the lower end to the cloth by a cement excreted by the female. They can be destroyed by boiling water or kerosene. In this connection see Bulletin No. 10, War Department, 1916.

The avoidance of buildings, places, and persons known to be infected with lice is of first importance.

In case troops are sent into a typhus area, a railway disinfecting and bathing train will be provided and stationary plants of like character at the bases.

EPIDEMIC JAUNDICE.

Cause.—Epidemic jaundice is caused by a spirochete which is abundant in the urine and feces of convalescents, and is also frequently found in the kidneys of rats. This spirochete lives for some time in water, and the disease is contracted by standing in contaminated water, and less frequently by eating contaminated food.

Prevention.—Prevention consists in isolation of all cases until the urine and feces are free from spirochetes, avoidance of urine and fecal contamination of trenches, destruction of rats, the protection of food, and keeping trenches free from water. If the trenches become contaminated, water should be pumped out and lime sprinkled freely over the soil.

SMALLPOX.

Any case of smallpox occurring among persons subject to military control will be isolated, and contacts not protected by recent successful vaccination will be revaccinated.

VACCINATION.

Vaccination being recognized as an effective means of preventing smallpox, all recruits upon enlistment and all soldiers upon reenlistment will be vaccinated. When the first vaccination of a recruit is ineffective, it will be repeated at the end of eight days.

All the personnel of a military command, station, or transport, including civilians connected therewith, will be vaccinated when in the opinion of the medical officer responsible for sanitation it is necessary as a means of protection against smallpox. Civilians refusing to be vaccinated when so directed by proper authority may be excluded from the military reservation or station.

Officers should be vaccinated at least once in a period of seven years. Troops under orders to perform over-sea journeys or field service will be inspected by the responsible medical officer with respect to their protection against smallpox, and those who in his opinion require it will be vaccinated.

Technique.—The skin at the selected site must be clean. Washing with warm water, followed by alcohol, is usually sufficient, the alcohol being permitted to evaporate before proceeding. Scrubbing with soap and water is necessary for a dirty skin, but needless irritation of the skin is to be avoided.

The procedure, described as follows, is preferable to “scarification,” which will no longer be used:

Incision is the method of choice and should be made with the point of a sterile needle, producing a “scratch.” A sterile scalpel may be used, but is more likely to cause bleeding. The incision or scratch should preferably not draw blood. There should be at least two incisions, three-quarters of an inch long and 1 inch apart; after exposure to smallpox four incisions will be made. The virus is then placed upon the abraded surface and gently rubbed in, unnecessary irritation being avoided.

The wound is allowed to dry thoroughly and can be left without dressing, though several layers of gauze may be applied with adhesive plaster. Any dressing that retains heat and moisture is bad. Shields will no longer be issued.

Bathing is permitted, but unnecessary use of the limb is to be discouraged when practicable.

MEASLES, MUMPS, AND SCARLET FEVER.

When these diseases appear in a command all cases of illness with catarrhal symptoms having a temperature of 101 degrees or over will be promptly isolated, and the general preventive measures used against the contagious respiratory diseases will be instituted. Susceptible contacts will be isolated and inspected daily.

If practicable, a detention camp will be established where all recently joined recruits will be held under observation before being permitted to join their organizations.

SANITATION, UNITED STATES.

CAMP SANITATION.

The following sanitary regulations are published for the guidance of all concerned:

1. *Responsibility for sanitation.*—Commanders of all grades are responsible for police and sanitation and for the enforcement of the provisions of these regulations within their organizations.

2. *Division surgeon.*—The division surgeon is charged, under the commanding general, with the general conduct and supervision of the Medical Department of the division in the performance of its duties and will make recommendation concerning all matters pertaining to the sanitary welfare of the command.

3. *Sanitary inspector.*—The sanitary inspector is assistant to the division surgeon and is charged especially with the supervision of the sanitation of the command to which he is assigned. It is the duty of organization commanders to remedy defects reported to them with the least possible delay.

4. *Sanitary squads* will be organized by the division surgeon for special sanitary purposes, such as the purification of water supplies, mosquito and fly prevention, disposal of wastes, and disinfection. They will consist of officers, noncommissioned officers and privates first class, or privates of the Medical Department, assisted by civilian sanitary laborers employed by the Quartermaster Corps, and when necessary by details of officers and enlisted men from other branches of the service.

5. *Water supply.*—In the field water must not be used for drinking purposes until it has been pronounced fit for use by a medical officer. Care must be taken to prevent contamination of stored water by keeping all containers scrupulously clean and covered in such manner as to prevent "dipping," and the entrance of dust and other sources of infection. The use of a common drinking cup will not be permitted.

An appliance carried on the supply table as "Water bag, field, sterilizing," consists of a 40-gallon canvas bag of specially woven flax, 20 inches in diameter and 28 inches in length. The purpose of the bag is not to transport water, but to provide a stationary receptacle in which water can be held long enough to sterilize, and then be distributed. The empty bag weighs from 7 to 7½ pounds and folds into a convenient package for carriage in the field, for which purpose it was especially designed. After the bag is suspended and filled, the water is sterilized by the addition of a small amount of hypochlorite of calcium. This is carried in measured doses, sealed in glass tubes. The process is one of oxidation. In the strength used, waters highly infected are rendered safe. Water ordinarily used will be entirely safe after being so treated. As the chemical acts more efficiently in clear waters, a filter cloth, to be fastened over the opening of the bag and weighing 1 ounce is provided, or water may be strained through a blanket. Suspended matter, such as clay, is largely removed and not left to interfere with the action of the chlorin. The bag is filled after it is put in place.

6. *Kitchens and mess halls.*—Kitchens and mess halls will be securely screened and flytraps provided for catching flies that gain entrance. An effective flytrap consisting of a light wooden frame covered with wire gauze, extending to about one-eighth of an inch of the floor of the trap, is readily constructed. Sweetened water, slightly acidulated with vinegar, is an excellent bait. Fly paper may also be used. All food receptacles, dishes, and tableware will be protected from flies and dust. Unit commanders will see that an ample supply of hot water and dish towels are provided for cleaning cooking utensils, dishes, and mess kits. Ice boxes will be kept elevated at a height sufficient to allow for inspection and cleansing. Drip pans will be emptied and scalded out daily.

7. *Food and drinks.*—No food or like commodities will be sold in camp except in the authorized exchanges.

Bills of fare should be prepared in advance and adhered to as far as is practicable. Attention is called to the use of the following foods, the elimination of which from the messes will serve to prevent a variety of intestinal disorders:

(a) Canned milk and fish opened the day before (milk and fish poisoning).

(b) Hashes of meats and potatoes prepared the night previous (ptomaine poisoning of severe type).

(c) In certain localities green vegetables, uncooked (dysenteries and diarrhea).

8. *Baths and lavatories*.—Careful inspection will be made daily to see that waste water is so disposed of as to prevent mosquito breeding and other nuisances.

9. *Disposal of garbage*.—For detachments or companies in camps or in isolated locations where other means of disposal are not available, an incinerator will be installed of a type approved by the sanitary inspector. The Guthrie incinerator may be used, detail drawing for the construction of which may be found in the Manual for the Quartermaster Corps. Where disposal in a sanitary manner can be made by cartage, the garbage may be carried away in the can and disposed of. The returned can will be thoroughly cleaned. Cans will be kept tightly covered on open stands.

10. *Care of picket lines and disposal of manure*.—Picket lines will be kept broom swept, and all manure and straw hauled away daily and burned or otherwise disposed of as directed by the sanitary inspector. A weekly incineration of the picket lines will be accomplished with the use of crude oil. Crude oil may be obtained from the Quartermaster Corps on usual requisition.

11. *Disposal of excreta*.—In permanent camps where a water-carriage system is not installed, the Havard or other fly-tight box and pit latrine will be used. Each day the pit will either be burned out or sprayed with a lampblack or bone-black mixture. If burned out, 1 gallon of crude oil and 15 pounds of hay or straw should be used. A satisfactory mixture for spraying consists of half pound of lampblack to a gallon of kerosene, or 1 pound of bone black to 3 gallons of crude oil. Spraying should be done preferably with a spray pump. Both the interior of the box and of the pit should be kept thoroughly coated with the mixture. Detail drawing of the Havard box may be found in the Manual for the Quartermaster Corps. The box must be kept fly tight. This implies closure of all cracks, care of hinges, and back construction, so that the lids drop automatically. The latrine seats will be scrubbed with soap and water daily and washed off at least twice weekly with a one-one-hundredths solution of creolin or other disinfectant. When filled to within 2 feet of the top, pits will be filled with earth to within 6 inches of the surface and covered with a layer of sacking soaked in crude oil to extend 3 feet beyond the edges of the pit; the latter will then be filled in with earth and the location marked. Urinal cans will be placed in the camp streets at nights and removed in the morning, emptied, and burned out. Facilities for washing the hands should, if possible, be provided in each latrine.

12. *Personal cleanliness*.—Every member of the command will bathe at least twice weekly. Army Regulations (par. 286) require that the men shall wash their hands before each meal and immediately after visiting the latrines. Teeth will be cleansed with a brush at least once a day. Underwear should be frequently changed. Bedding and clothing will be sunned and tent walls raised daily, weather permitting. Barracks and tents will be adequately ventilated. Tents will be furled or struck frequently so that the sites may be thoroughly sunned.

13. *Veneral diseases*.—The cause of these diseases is a matter of common knowledge. They are entirely preventable and the Government punishes those who expose themselves and contract venereal disease by prompt stoppage of pay and restriction of privileges while under treatment.

It is enjoined upon all officers serving with troops to do their utmost to encourage healthful exercises and physical recreation and to supply opportunities for cleanly social and interesting mental occupations for the men under their command; to take advantage of favorable opportunities to point out, particularly to the younger men, the inevitable misery and disaster which follow upon intemperance and moral uncleanness, and that venereal disease, which is almost sure to follow licentious living, is never a trivial affair. Although the chief obligation and responsibility for the instruction of soldiers in these matters rests upon company officers, the medical officers should cooperate by occasional lectures or other instruction upon the subject of sexual physiology and hygiene and the dangers of venereal infection.

Commanding officers will require that men who expose themselves to the danger of contracting venereal disease shall at once upon their return to camp or garrison report to the hospital or dispensary for the application of such cleansing and prophylactic treatment as may be prescribed by the Surgeon General. Any soldier who fails to comply with such instructions, if found to be suffering from a venereal affection shall be brought to trial by court-martial for neglect of duty.

Cases of these diseases will be promptly subjected to treatment, but not necessarily excused from duty unless, in the opinion of the surgeon, it is deemed desirable. They will be made of record in the medical reports in any case. A list of those diseased but doing duty will be kept both by the company or detachment commander and the surgeon, and the infected men will be required to report to a medical officer

for systematic treatment until cured. While in the infectious stages the men should be confined strictly to the limits of the post. When a venereal case, whether or not on sick report, is transferred to another command, the surgeon will send a transfer slip giving a brief history of the case.

14. *Fitting of shoes and care of feet.*—Company commanders will personally measure the feet and fit the shoes of men of their commands and will be held responsible that the instructions herein contained are strictly followed.

All measurements prescribed herein will be taken with the soldier standing in bare feet and with a 40-pound burden on his back, bearing the entire weight upon the foot to be measured. Balance may be preserved by resting the hand on a fixed object. The measurements of the foot, which must be taken to make suitable preliminary selection of the shoe to try on, (a) the length, (b) the circumference around the ball.

To measure the length, the soldier will stand with foot upon the foot measure, furnished by the Quartermaster's Corps, fitted in a slot in a board, the heel of the soldier fitting snugly against the heel block. The movable block will then be pushed up until it touches the end of the great toe. The scale on the top of the shoe will be determined, approximately, by adding 2 to the reading of the scale; thus, if the soldier's foot scales $6\frac{1}{2}$, a shoe not smaller than $8\frac{1}{2}$ should be tried on first.

To take the ball measure, pass the foot tape, supplied by the Quartermaster's Corps, around the foot at the prominent tubercle at the base of the great toe and the prominent tubercle at the base of the little toe.

The tape should lie closely to the flesh, but should not be so tight as to compress it. Having taken the foregoing measurements, the shoe best suited to the foot will be determined by reference to Special Regulations No. 40, War Department. For example, assume that the circumference of the ball is found to be $9\frac{1}{4}$ inches. In the table on page 28 of the aforesaid circular, under the heading "Marching shoes," it will be seen that for a foot requiring an $8\frac{1}{2}$ shoe a ball measurement of $9\frac{1}{4}$ inches corresponds to a D width. The size of shoe to try on for actual fitting is, then, in this case, $8\frac{1}{2}$ D.

If the ball measurement found as above does not correspond exactly with any ball measurement given in the table, then the narrower of the two widths between which the measurement lies should be selected.

Beginning with the size and width thus tentatively selected, shoes will be tried on until a satisfactory fit is secured.

Correct fit in width and instep will be determined experimentally. To determine the fact of fit the shoe will be laced snugly and the soldier with a 40-pound burden upon his back will again throw his entire weight on one foot. The officer will then press in the leather of the shoe in front of the toes to determine the existence of sufficient vacant space in front of the great toe be less than two-thirds inch, nor should there be pressure on the top of the toes. The officer will then grasp with his hand the leather of the shoe over the ball. As his fingers and thumb are brought slowly together over the leather the shoe should feel snugly filled without apparent tension while the leather should lie smoothly under the hand. If the leather wrinkles under the grasp of the hand the shoe is too wide and a narrower width is needed; if the leather seems tense and bulging and the hand tends to slip over easily, the shoe is too narrow and a greater width is necessary.

Usually it will be necessary to try on several pairs of shoes in this manner before an entirely satisfactory shoe is secured. A record of the proper size and width of shoes as determined above will be kept as provided in Circular 17, Quartermaster General's Office, May 1, 1916.

Measurements will be taken and shoes will be fitted as prescribed at least once in each enlistment and the record will be changed from time to time if subsequent fittings render a change necessary.

Sizes called for in requisitions will conform to the record and the fact of fit of shoes issued on such requisitions will be personally verified in every instance by company commanders in the manner above prescribed.

No shoes will be issued to, or worn by, enlisted men while on duty which are not fitted in accordance with this order.

New shoes should be adapted to the contours of the feet as soon as possible. Shoe stretchers with adjustable knobs to take pressure off painful corns and bunions are issued by the Quartermaster Corps.

All shoes should be properly broken in before beginning a march. The following is required:

The soldier stands in his new shoes in about $2\frac{1}{2}$ inches of water for about five minutes until the leather is thoroughly pliable and moist; he should then walk over for about an hour on a level surface, letting the shoes dry on his feet, to the irregularities of which

the leather is thus molded in the same way as it was previously molded over the shoe last. On taking the shoes off a very little neat's-foot oil should be rubbed into the leather to prevent its hardening and cracking. If it is desired to waterproof the shoes at any time a considerable amount of neat's-foot oil should be rubbed into the leather.

Light woolen or heavy woolen socks will habitually be worn for marching; the socks will be large enough to permit free movement of the toes, but not so loose as to permit of wrinkling. Darned socks, or socks with holes, will not be worn in marching.

Company commanders, by frequent inspections throughout the year, will maintain the feet of their men in condition for proper marching. They will cause the proper trimming of nails, removal or paring of corns and callouses, relief of painful bunions, treatment of ingrowing nails, and other defects, sending serious cases to the surgeon.

Before a march is undertaken by foot troops, company commanders will personally inspect the bare feet of their men. While on the march they will personally see each day that their men wash their feet as soon as possible after reaching camp, prick and evacuate blisters and cover such blisters or excoriations with zinc oxide plaster supplied by the Medical Department, applied hot, dust the feet with the foot powder supplied by the Medical Department, and put on clean socks. An undue amount of foot injury and disability from shoes will be regarded as evidence of inefficiency on the part of the officers concerned and as cause for investigation.

Quartermasters will provide a place where shoes may be fitted for the purpose of determining or verifying the record to be kept in each company, troop, battery, and detachment of the proper sizes of shoes required for each enlisted man thereof. For the purpose of fitting they will keep on hand at all times a complete series of each size and width of shoes furnished for issue. Company commanders will report in writing to the next higher commander every instance of failure to secure proper shoes for their commands or to obtain proper facilities for fitting the shoes as herein directed. Commanders will investigate the reasons for and be held responsible as far as lies in their power for the rectification of such deficiencies.

A brief record of the number of such reports from company commanders and the reason for such deficiencies will be furnished to inspectors at each inspection.

Inspections conducted under the provisions of paragraph 889, Army Regulations, will embrace an inquiry into the manner in which this order has been complied with, and the report of inspections will include a statement of all instances of failure on the part of company commanders to secure proper shoes for their commands and the cause of such failure.

15. *Physical inspections of troops.*—Commanding officers will require a medical officer, accompanied by the company or detachment commander, to make a thorough physical inspection twice in each month of all the enlisted men of each organization belonging to or attached to the command. These inspections will be made at times not known beforehand to the men and preferably immediately after a formation. The dates on which the physical inspections of the various organizations are made will be noted on the monthly sanitary reports.

At these inspections an examination of the feet and footwear and of the condition or personal cleanliness of the men will be made, as well as careful observation for the detection of venereal diseases.

16. *Sanitary inspections of organizations.*—Surgeons of organizations will make a daily inspection of the commands to which they pertain, giving particular attention to the following: Picket lines, latrines, kitchens, and mess halls, including cleanliness of cooks, utensils and fixtures, barracks and tents, inclosed toilets, baths, lavatories, laundries, exchanges, garbage receptacles, incinerators, and all food supplies. They will make a verbal report at once to their respective commanding officers for the correction of any sanitary defects noted, and a similar report, with the action taken, to the sanitary inspector on his next visit.

17. *Mosquito breeding.*—Areas about camps in which mosquitoes might breed, such as cisterns, tanks, woods, gutters, pools, and drains, will be kept under close observation by the responsible medical officers and the proper remedies applied, i. e., screening, draining, oiling, etc. The use of the mosquito bar is imperative in all districts where mosquitoes are prevalent, except where tents or barracks are effectually screened with wire.

18. *Flies.*—All possible breeding places of flies should be destroyed, particular attention being given to manure and refuse from picket lines and stables.

An energetic campaign must be begun at once against the mature flies.

REPORTS OF DEPARTMENT SURGEONS.

The department surgeon, Eastern Department, reports as follows:

The average strength of command as reported by surgeons, was 23,013. The number of admissions to sick report, including those taken up for record only, was 18,410, and

512 were made from the previous year; no deduction was made for readmissions. The admission rate per thousand of strength for 1915 was 757.22, the admission rate for this year being 799.98. The admission rate for the entire Army in the year 1915 was 726.19, readmissions deducted.

The constantly noneffective rate for all causes, per thousand of strength, was 22.09. The rate for 1915 was 19.35, for 1914, 17.69, and for 1913, 16.52. These increases are accounted for partly by the increase in the garrison at Panama, where a higher constantly noneffective rate is expected, and by the withdrawal of troops from posts in this department, leaving their sick to be cared for, thus charging this department with the days lost by such patients without the compensation of the organization strength to be used in statistical tables.

The average number of days each case was treated was 9.79, an increase over that of last year, which was 8.86; and for each case of venereal disease an increase from 12.53 in 1915 to 14.08 in 1916. This increase is due at least in part to the fact that surgeons at posts are required to keep active cases of venereal disease in hospital wherever practicable. The percentage of venereal admissions to all cases was 13.75, as contrasted with 12.22 for 1915.

With reference to venereal diseases, the rate of constantly noneffective of the department for the year was 4.16 against 3.39 for 1915. The admission rate for venereal diseases per thousand of strength was 109, as against 97 in 1915 and 99 in 1914. No deduction is made on readmissions.

The eight prevailing diseases in order of precedence after venereal are as follows:

Disease.	Days lost.	Constantly noneffective per thousand of strength.
1. Digestive.....	19,258	2.28
2. Cutaneous.....	12,897	1.53
3. Respiratory.....	11,320	1.34
4. Circulatory.....	7,979	.95
5. Malaria.....	7,379	.88
6. Influenza.....	7,342	.87
7. Tonsillitis.....	5,912	.70
8. Rheumatism.....	5,732	.68

EPIDEMIC DISEASES.

Mumps.—There were only 51 cases of mumps, losing 869 days, as compared with 225 cases in 1915, which lost 29,506 days. These cases occurred at 15 posts, the largest number, 20, having occurred at Fort H. G. Wright.

Measles.—There were 110 cases of measles at 29 posts, losing 1,925 days, as compared with 45 cases in 1915, losing 832 days. The largest number was 15 cases at Fort Adams.

Typhoid fever.—There were 2 cases of typhoid fever during the year, 1 at Fort Dade and 1 at Fort Oglethorpe.

Tuberculosis.—A decrease is noted from last year, as shown by the following table:

1914.....	41 cases lost 1,152 days.
1915.....	77 cases lost 1,568 days.
1916.....	65 cases lost 1,334 days.

The largest number of cases, 8, occurred at San Juan; Fort Myer and camp at Empire each had 5 cases.

Alcoholism.—The following table shows the number of days lost, admissions, and days lost per thousand of strength on account of alcoholism:

Year.	Days lost.	Number of admissions.	Admission rate per thousand.
1913.....	1,651	388	17.02
1914.....	1,283	362	16.12
1915.....	1,992	446	18.80
1916.....	1,607	375	15.28

Leprosy.—One case of leprosy in the person of a hospital matron occurred during the year at Key West Barracks. The source of infection is not known.

During the year, 196 soldiers belonging to this department were discharged on surgeon's certificate of disability. Of these, 83 were for causes incurred in line of duty; 113 were for causes not in line of duty. Of the latter, 73 were for disability existing prior to enlistment. The rate per thousand of strength is 8.52 as contrasted with 6.64 for 1915 and 10.42 for 1914. The rates of discharge in the Army at large in 1915 and 1914 were 13.60 and 14.82, respectively.

Discharges on surgeon's certificate of disability, calendar year 1916.

Disease or condition:	Cases.
Tuberculosis, pulmonary.....	36
Flat foot.....	24
Syphilis.....	12
Dementia, precox.....	8
Dementia, hebephrenic.....	1
Fractures.....	8
Gonorrhea.....	7
Epilepsy.....	5
Heart disease.....	5
Arthritis.....	5
Varicose veins.....	4
Hyperthyroidism.....	4
Hernia, inguinal.....	3
Deflected nasal septum.....	3
Neurasthenia.....	3
Hydrocele.....	2
Atrophy of muscles.....	2
Asthma, bronchial.....	2
Synovitis, knee.....	2
Psychosis.....	2
Dislocation of shoulder.....	2
Otitis, media.....	2
Nephritis, chronic.....	2
Miscellaneous.....	52
Total.....	196

Sixty-one deaths were reported during the year. This was a rate of 2.65 per thousand, as compared with 3.09 per thousand for 1915. Two were commissioned officers. Fifty-two were in line of duty, 8 were not in line of duty, and 1 undetermined.

Deaths.

From diseases:	
Pneumonia.....	5
Nephritis.....	4
Heart diseases.....	3
Appendicitis, acute.....	2
Cerebrospinal meningitis.....	2
Gastric ulcer.....	1
Abscess of liver.....	1
Gastroduodenitis, acute.....	1
Adhesions, transverse colon.....	1
Hernia, strangulated, mesenteric.....	1
Peritonitis, general, following hernia operation.....	1
Typhoid fever.....	1
Diabetes, mellitus.....	1
Carcinoma of pancreas and stomach.....	1
Septicemia following carbuncle, lips, cheeks, and nose.....	1
Carbuncle.....	1
Leukemia.....	1
Paralysis, bulbar.....	1
Broncho-pneumonia.....	1
Abscess, lung.....	1
Congestion of lungs.....	1
Total from disease.....	32

From accidents:

Drowning, accidental.....	14
Fractured skull.....	5
Gunshot wounds.....	2
Poisoning by wood alcohol.....	2
Strangulation, accidental.....	1
Run over by cars.....	1
Total.....	25

(Of the above external causes, 2 were homicidal.)

Suicidal:

Hanging.....	2
Gunshot wounds.....	2
Total.....	4

Total from external causes..... 29

The unsatisfactory condition in the matter of hospital treatment in the Canal Zone for those in the military service, and more particularly for the dependent members of the families of persons in the military service, has been brought to the attention of higher authority in previous reports. No change in the condition has occurred during the year. A hospital or hospitals in the Zone for the treatment of the sick of the military service, to be controlled, managed, and served by members of the Medical Department only, and the withdrawal of medical officers from the civil or Canal hospitals, would seem to be the only satisfactory solution of the present difficult situation.

Hospital fund.—As shown by the monthly statements, the hospital fund has been well administered, and the various messes efficiently and economically managed.

When the school for bakers and cooks is reestablished at Washington Barracks it is the intention of this office to encourage the assignment of prospective cooks and mess sergeants from the larger posts for assignment to that school for the course of instruction.

One acting cook was sent to the school from Fort Monroe in the early part of the year. Subsequent records show that he was sent to Plattsburg with a section of the school, and finally was discovered acting as kitchen police in one of the engineer companies. It is presumed that in more settled times a repetition of this incident will not occur.

Sanitary inspections.—No sanitary inspections were made during the year. The interdiction of the War Department of July 8, 1915, has not been lifted and no special conditions have arisen that required investigation.

Medical officers in different parts of the country have been designated to assist the inspector general's department in the inspection of sanitary units and sanitary detachments of organizations of the National Guard at the winter armory inspections. The reports of their work do not reach this office.

Dentists.—There are serving at present in the continental limits of this department five dental surgeons, with an estimated strength of about 15,000 men. There should be at least 15, and an additional dentist sent for every regiment which may be returned to station from the border.

There are three serving in Panama, and one is under orders from Columbus Barracks for San Juan for a limited period.

The situation will be much relieved if all of the dentists sent from this department for temporary duty to the Texas border can be returned to their proper stations.

There are allotted to this department 157 medical officers and 21 dentists, as follows:

Colonels.....	1
Lieutenant colonels.....	10
Majors.....	38
Captains.....	44
First lieutenants, Medical Corps.....	3
First lieutenants, Medical Reserve Corps.....	60
Contract surgeon.....	1
Total medical officers.....	157
First lieutenants, Dental Corps.....	21

Of these, 76 medical officers are serving on the border on temporary duty with the Southern Department, and 10 of the 21 dentists are likewise on temporary duty with the Southern Department on the border.

The following is the standing of the enlisted personnel of the Medical Department, this date:

Sergeants, first class.....	45
Sergeants.....	61
Corporals.....	20
Total.....	126
Allowance, 123; excess, 3.	
Privates, first class (including cooks).....	218
Privates.....	311
Total.....	529
Allowance, 553; deficit, 24.	
The number of cooks is 37.	

The personnel at Fort Crockett is not included in this table, the post only having been retransferred to this department on December 14, 1916.

The services of the officers of the Medical Reserve Corps and of the Dental Corps have been entirely satisfactory, no complaints or disciplinary measures taken having been reported to these headquarters.

Detachments, Medical Department.—The establishment of ratings for increased pay for surgical assistants, dispensary assistants, and nurses will, it is believed, result in much satisfaction to those members of the Medical Department who have merited such ratings and will insure the Government better performance of those duties.

The machinery for conferring these ratings upon the men is believed to be cumbersome, and in the opinion of the undersigned a better plan would be for the department surgeon, or the Surgeon General in the case of those posts which are independent, to definitely determine how many of each grade shall be allowed to the various hospitals, and then allow the surgeon of each hospital to rate or disrate, according to the merits of the case. The provision that the men are not to receive the pay excepting when actually performing the duties, is a very good one and should be continued. Instruction of the men of these detachments has been followed as per the scheme outlined in the Manual for the Medical Department.

This department was stripped to the lowest possible minimum of all instructed men when the mobilization of Regular troops to points on the border began in the early part of the year. Recruits were sent to certain posts from recruit depots for intensive training, and in view of the urgency of the situation directions were given that these men receive at least six hours of drill and instruction per day. This method, in conjunction with the excellent character of the recruits then being enlisted resulted in fairly well-equipped sanitary soldiers being available for transfer to the border in a very short time.

The establishment of the higher grades of noncommissioned officers (master hospital sergeant and hospital sergeant) will doubtless result in making the noncommissioned officers more satisfied with this branch of the service, and stimulate them to equip themselves for the higher duties. It is believed, however, that the change of their status by subjecting them to reductions by court-martial, and particularly by changing ranks so that the first sergeants of companies are senior to the sergeants first class of the Medical Department, is a mistake. It is believed that any person who has served with troops will concede that a sergeant first class is of necessity of a higher grade than is needed for first sergeant, with the single exception, perhaps, of the control and discipline of men, and even in this few of our older noncommissioned officers are lacking.

EXTRACTS FROM REPORTS OF SURGEONS OF POSTS.

FORT CONSTITUTION.

The surgeon's quarters is the only building on the reservation receiving its water supply from a ground well. Though situated on rock foundation, the latrines used by the militia organizations during their summer encampment and the location of stables within about 100 feet of this building, make the water supplied by this well unsafe for drinking purposes. The post hospital consists of a one-story frame building, heated by coal stoves throughout. The dust and coal gas arising from the operation of these stoves tend to make sanitary conditions at the hospital not altogether satisfactory. There is only one washbowl and one bathtub available for use by men on duty and patients. The lighting facilities are also in need of improvement.

PLATTSBURG BARRACKS.

The toilet room adjoining the mess hall and bathroom in the general mess hall should be entirely remodeled and new fixtures installed. Screened doors should be installed between this room and the kitchen. These were recommended in 1914, but no change has yet been made. The shower bath can not be used. The room is deemed unsanitary because the floor is in a very dilapidated condition, allowing fluids to leak through the basement.

FORT JAY, N. Y.

A new hospital building is needed. This has been reported for many years. The present one is poorly designed; creates an unfavorable impression upon visiting professional men; is not sanitary; has no waiting room or receiving room (officers, ladies, children, enlisted men, civilians, and prisoners assemble in the hallway awaiting their turn); no wardmasters' rooms, no isolation ward, no insane ward, no classroom, no special room for the removal of serious or dying cases, no toilets except in wards, and no suitable examination room. The plumbing is practically worn out and there is no hot water in the main building. The hospital at present is being used as an evacuation hospital for the military in Panama, as well as for general prisoners, militia, and casualties from New York City, as well as cases sent from other posts in this department for observation and treatment.

FORT WASHINGTON, MD.

This post formerly had the unenviable distinction of having the highest rate in the Army for malarial disease. During the year 1916 the few cases of malaria under treatment there did not originate at that post. The vegetation has been kept down, drains cleaned to prevent breeding and harboring of mosquitos, swampy places have been drained or oiled by post labor, and a number of goats maintained to keep down the vegetation.

FORT WARREN, MASS.

The prevailing diseases, influenza and tonsillitis, are believed by the surgeon to be due in a considerable measure to the poor ventilation and uneven heating of the casemate quarters and of the old temporary barracks used as quarters by a part of the command. The only remedy is reconstructing the entire post. The sanitary defects concerning the stables remain unchanged. Construction of concrete floors is deemed necessary.

FORT HOWARD, MD.

The following interesting quotations are made from the report of the surgeon at Fort Howard, with relation to gonorrhea, concrete barracks, and the presence of flies and mosquitos:

"Gonorrhoea—while not in as great a percentage as would probably be found among the same number of unmarried young men in civil life—is not an infrequent complaint. The prophylactic treatments are required and records of such cases are kept and 'K' packets are obtainable at post exchange and hospital for the asking; nevertheless this procedure does not seem sufficient. In my opinion, the men are not impressed with the necessity of treatment immediately after exposure; i. e., a man may be exposed several times within a few days and take but one treatment; then, if he develops gonorrhea within a week or 10 days after the recorded prophylactic treatment, I have no proof that he did not conform to regulations if he does not choose to admit it. I have tried to impress upon the men the advisability of the use of the preventative tubes and a lecture has recently been given to the enlisted personnel on this subject.

"All buildings with one exception are light and well ventilated. Plumbing and drainage in good condition. The exception is a concrete barracks building that is giving a great deal of trouble. The men complain of colds and discomfort. The building is always damp and on frequent occasions the walls 'sweat' moisture, with puddles of water on the floor. I reported these conditions to the commanding officer, who called a board of officers for investigation. This board made an exhaustive study of this building and its findings and recommendations were forwarded to higher authorities and a requisition for material to install wooden floors in these barracks was likewise submitted.

"The post is almost entirely surrounded by extensive tidewater marshes and the mosquitos and flies present a very difficult problem. From May until October oil is distributed every week. All drains, sewers, and hollows where water can collect

were also treated with oil. The marshes on the reservation are all ditched and oil is distributed here also. This seemed to reduce the number of mosquitoes this summer, although it is an impossibility to eradicate them unless one had authority over the marshes outside the post with unlimited money to spend. There were only a few cases of malaria this year and practically all cases were old infections transplanted from some other place. The flies were present in great numbers, more especially during the months of September and October. The garbage-disposal cans were most carefully inspected and regulations rigidly enforced on the reservation, but the result was far from satisfactory. This condition was due to a great extent to the insanitary condition of the settlement immediately outside of the reservation, which condition is deplorable. Another cause is the fertilizer used on the truck farms in the immediate vicinity. The settlement consists of about 50 houses, the owner of which owns most of the land adjoining the reservation. He uses as a fertilizer the residue from the sewerage tanks of the Baltimore sewer disposal plant, and probably untreated human excreta, although there is no proof of this fact. This seems to attract and breed flies in great numbers. The settlement is drained by open ditches, only a few of which are cemented. Most of them are merely trenches without proper fall and unkept. The grass and weeds are allowed to grow in them. The toilet facilities are wooden shacks all built on the edges of these ditches and each containing galvanized cans. Some attempt has been made to screen these cans from the flies in the past, but this attempt was evidently inadequate in the beginning and long since has fallen into decay. The cans are emptied at infrequent intervals and in many cases run over, their contents running into the draining ditches. They are at all times exposed to flies. The main outflow ditch goes across the road immediately outside of the gate of the reservation and empties on the edge of the marsh that abuts on a deep arm of a creek which washes the shores of the reservation. There is a continuous 'scum' on this water around the shore line and in hot weather the odor is extremely unpleasant, although the condition has considerably improved over past years, according to reports. No way has been found to force the owner to remedy these conditions. Complaints to the State board of health brought back the answer that unless it could be proven that these conditions actually caused a definite case of disease that they were powerless to do anything. Most of the inhabitants of this settlement are enlisted men who, of course, could be ordered to live within the reservation. This would not disconcert the owner, however, because the workmen of the Sparrows Point Steel Mills would promptly occupy the vacated houses. No recommendation is made with a view of remedying these conditions unless it be possible for the Government to buy the land in question."

FORT DUPONT.

The surgeon reports venereal diseases rather in excess of the ordinary, owing to the fact that the men are exposed while on pass in Wilmington, and the time that elapses between exposure and prophylaxis is too long. The use of prophylactic tubes in such cases to be followed by the regular hospital treatment is recommended. In reference to the water supply, the surgeon states the presence of an excess of ferric salts in the water rapidly deteriorates the plumbing and necessitates an excessive expenditure for repairs. There is no other source available. Distilled water is used for drinking and cooking.

FORT ETHAN ALLEN.

The surgeon, Fort Ethan Allen, reports the distance from the post to Burlington (the main source of infection from venereal disease) is probably the cause of the failure of the prophylactic in a few cases. He states his belief "that some kind of moving pictures could be used to advantage in the campaign against venereal disease. This has probably been suggested before, but it certainly is not impracticable to get one of the proper class. Some short story could be used as the framework for the main facts, and a regular 'movie' company could put it on. It should include living pictures of the insane, the blind, paralyzed, etc., due to these diseases, blocking out the facial expression in each case so as to avoid actual identification. When such films are completed, medical officers should be trained to give special explanatory remarks during the 'show,' using the chaplain's machine for that purpose." He also suggests that recommendations be made that the next appropriation act provide for at least \$5 per month extra pay for chauffeurs of motor ambulances.

FORT ST. PHILIP, LA.

The surgeon reports that the hospital is absolutely unfit for laparotomy cases, the operating room being in a dirty condition, not from dirt that could be cleaned up but from dust in the cracks and crevices in the floor, etc., due to the age of the building.

which can not but be disturbed every time the floor is stepped upon. This condition would be extremely dangerous to a patient undergoing a bad abdominal operation in such a place.

FORT SHERMAN, CANAL ZONE.

The surgeon reports in part as follows:

"This post has always had numerous cases of malaria. This is because the post itself and surrounding areas are surrounded by jungle. The fact that the notoriously malarial Chagres district is near by and that a detachment of this command has been stationed in the heart of this district added to the malarial rate. During the past year all swamps in and near the post have been drained and kept drained by over 40 miles of ditches. The jungle is being cleared back as fast as possible.

"There have been and still are many mosquitoes in the post at certain times when the winds are from the south and southwest. These winds are especially prevalent during the wet season, which lasts about eight months. The number of these mosquitoes, especially of the anopheles variety, is steadily growing less as we are able to increase the distance of the jungle from the post.

"In view of all these facts it was recommended in the sanitary report for May, 1916, that enough jungle be cleared off so that it would be distant a minimum of a mile from the quarters then occupied and about three-fourths of a mile from the new quarters contemplated (now under construction). This recommendation was repeated in the June report and was disapproved by a board for the time being.

"It was later recommended, in a special sanitary report, that at least 350 acres of jungle be cleared to give a minimum safety of one-half mile. To do this with the present help available would take the entire sanitary gang one year to accomplish if they were able to work exclusively at clearing jungle. With their other work to do it would take them two or three years, during which time the officers and enlisted men and their families would be exposed to bites from anopheles mosquitoes.

"There were present in the post about 60 persons who are known to have had malaria. These persons are kept continuously on quinine. Despite this we have recurrence among these cases. Also, mosquitoes get into the sleeping quarters despite the fact that they are kept carefully screened. They enter through the doors when opened. Therefore if anopheles mosquitoes are present on the post with carriers, there will be more or less malaria. When the jungle area is pushed back far enough there will be practically no anopheles mosquitoes present in the post. The malarial rate has been constantly decreasing for the last six months in this post. Most of the cases occurring are recurrences."

FORT RANDOLPH.

The prevailing disease is malaria. Sanitary measures, including ditching and draining, have been carefully carried out, together with the prophylactic administration of quinine up to September 20, 1916. During the last five months no case of malaria has originated at the post. Sand flies have been very numerous, especially during May, when they became a source of extreme discomfort and a menace to health. Since clearing and ditching part of the mainland and cutting grass and bushes on the island the number of sand flies has been considerably reduced.

Except as above reported, the sanitary condition of all posts may be reported as good. At certain of the stations on the South Atlantic coast the only available supply of drinking water is that obtained in cisterns, and no milk is purchasable excepting condensed or evaporated milk. These conditions have been reported from year to year and, while not ideal, appear to be the cause of no particular departure from the normal health of the command.

The casemate barracks at Warren and Wadsworth have likewise frequently been reported upon, and, while they may be called dark, damp, and dismal, there has been no outbreak of respiratory or rheumatic troubles at those posts out of proportion to those at stations where troops are more comfortably quartered. The question of heating the quarters of sergeants, first class, is still an annoying one for the noncommissioned officers stationed on the northern Atlantic coast and on the Great Lakes. In order to make the rooms habitable it is practically necessary to maintain a stove in each room. This is, of course, beyond the allowance of heating stoves and would be impracticable with the present allowance of coal. If the quarters can not take advantage of the hot-water or steam-heating plant already established in hospitals, then at least a satisfactory furnace which can economically heat the entire quarters should be furnished.

Medical supplies have, as a rule, been abundant and good. The war in Europe has caused a fabulous increase in the price of some commodities that were thought to be indispensable, notably the potassium salts and the synthetic products from the German laboratories. The service is adjusting itself to the use of substitutes or other classes of remedies. The medical depots, while hard pushed during the mobilization, have with few exceptions filled requisitions with great promptitude.

THE MOBILIZATION OF THE NATIONAL GUARD.

The mobilization and muster into the Federal service of the National Guard and Organized Militia were attended with much confusion, due to a number of causes.

Mobilization camps had been designated for each State prior to the issue of the President's call. After the call in several States these sites were changed to other points. In some instances organizations, instead of being sent to the State camps, were rendezvoused at their armories or other points than those designated where there were no facilities for caring for the sick. These changes had not been foreseen and consequently organizations did not receive supplies promptly. Blank forms necessary to the muster in were at first not available, and mustering officers were authorized to have them printed. In other instances blank forms sent from these headquarters to the mobilization camps were found on investigation to have remained in the post office.

Many of the Medical Department's units reached camp without supplies or with imperfect equipment and meager supplies. Their officers were ignorant of the method of procuring these and, pending the arrival of camp hospital equipment, purchased supplies in the open market. In some camps medicines were apparently most lavishly expended, timely requisitions to replenish them were not made, and supplies were purchased in open market. In all such cases this office instructed the officers at fault in the proper method of procuring supplies and directed that in future timely requisitions be made for necessary supplies.

Camp hospitals had been sent by express by the Surgeon General of the Army to each mobilization camp. In those instances where designated camp sites had been changed considerable delay in their delivery ensued in consequence. At a number of camps commanding officers of field hospital companies converted their field hospitals into camp hospitals for the care of the sick, thus immobilizing these units, instead of using the camp hospitals for this purpose. It became necessary to issue instructions from this office that these units were not to be immobilized, but were to be used for the purpose of instruction and training of their personnel, and that the equipment of the camp hospitals which had been sent were to be used for the care of the sick. Except at one or two camps these instructions were complied with.

Many of the medical officers of the National Guard, accustomed to the conveniences and refinements of civil hospitals, failed to appreciate that the camp hospital equipment was adapted to the treatment of practically all cases that might arise. They sent many cases to civil hospitals which should have been treated at the camp hospital. On the other hand, the enlisted personnel of the Medical Department was inadequate and untrained, conditions which justified the transfer of serious cases to civil hospitals. Requests for the assignment of noncommissioned officers and men of the Medical Department of the Regular Establishment could not be granted, none being available. Severe storms which blew down or rendered the tentage unserviceable, made transfers of patients to civil hospitals necessary. The experience in camp hospital administration that might have been otherwise gained was thus lost to both the officers and enlisted men.

In order to assist the examining surgeons in their various duties, and with the view of instructing the Medical Department personnel of the National Guard in these duties, one noncommissioned officer and two privates first class, or privates of the regular Medical Department, were sent to each mobilization camp. It was assumed that the National Guard organizations contained many men with clerical training who after instruction would be able to take up this work. This assumption was not realized, and these labors fell almost entirely upon the men so detailed. In some instances they were assigned by commanding officers to the camp hospitals as cooks and nurses. Requests were made for the assignment of noncommissioned officers as instructors and privates as cooks, nurses, and clerks, but owing to the depleted condition of the Medical Department personnel in this department these requests could not be complied with. In each instance, the officer making the request was directed to instruct the National Guard personnel in such duties. It is believed no serious inconveniences resulted and the compulsory training of the medical department detachments of the National Guard was of benefit to all concerned.

On June 22, 1916, a list of officers of the Medical Corps and Medical Reserve Corps available for assignment as examining surgeons at mobilization camps and posts in

the department was furnished the department commander by the War Department, and the commanding general was authorized to assign the reserve officers to active duty where required and to posts where necessary. Assignments were accordingly made from these headquarters. Some delay in the case of Medical Reserve Corps officers was occasioned by the fact that some were National Guard officers, others declined active service, and some could not be reached, but the majority promptly responded. One officer of the Medical Corps, United States Army, was assigned to each mobilization camp for duty as medical examiner and in charge of physical examinations in mustering in militia into the service of the United States. Medical Reserve Corps officers were ordered to active duty and assigned to the camps as assistants to the examining surgeons.

In two of the States in this department enlistments had not been made in accordance with Bulletin No. 10, Surgeon General's Office, December, 1915, the United States Army standard. In these, physical examinations were required to be made prior to muster in. In the other States, troops were mustered in as soon as they had been accepted and were examined immediately after muster, and all who were found physically disqualified were discharged. The large number of discharges for disability subsequent to muster in, varying from 25 to 50 per cent demonstrated that physical examinations of the National Guard had been very carelessly made, and that National Guard officers with few exceptions had no conception of the physical qualifications required. The commanding general was importuned in letters and telegrams to waive physical defects in individual cases. This resulted in authorizing the regular medical officer at each camp to waive only such physical defects as would not interfere in any way with the performance of all military duty. All physical examinations were made under the supervision of the regular medical officer. Instructions issued were to the effect that medical officers of the National Guard were to be the first examined, and after having been sworn and mustered in, were detailed to assist the regular medical officer. War Department instructions directed that physical examinations be hastened with the view of sending the troops to the border as soon as possible. In issuing these instructions, medical officers were directed to make these examinations without regard to hours, and the work was then prosecuted day and night, in many instances for 16 hours or more each day, until completed. One officer reported that he had not removed his clothing or shoes for 72 hours, and stopped only because he had reached a state of complete exhaustion. Under such circumstances it was not surprising that many men who were physically disqualified for service were passed. It was contemplated that the regular officer on duty at the camps should also act as the camp surgeon, a consideration, however, that was impracticable, as upon him devolved the onerous task of deciding the question of the acceptance or rejection of every individual. Shortly after the troops arrived at the mobilization camps, the War Department directed the commanding general to assign a medical officer of no lower grade than that of major to each camp as sanitary inspector. There were absolutely no medical officers in the continental limits of the department for this duty. In order to comply with these directions it became necessary to assign the regular medical officer at each camp to this duty in addition to his other duties. While it was appreciated in this office that it was imposing an impossible task upon him, it was expected that he would at least be able to supervise this important duty though unable personally to make the inspections. The problem was solved in most camps by detailing a National Guard officer to make the actual inspections, who reported defects to the regular officer.

An unfortunate situation developed in one of the States by reason of the fact that a number of organizations were accepted and mustered in at their home armories instead of at the mobilization camp, with the result that the examining surgeon assigned to the mobilization camp was ordered to examine the organizations at various cities and did not reach the camp until some time after its establishment. Unofficial reports of decidedly insanitary conditions in this camp led to the detail of a special sanitary inspector to investigate and report upon the conditions existing at this camp. He succeeded in establishing order out of the chaos prevailing there, and in a short time thereafter the sanitary conditions were reported as satisfactory.

The muster in and dispatch of troops to the border were seriously embarrassed by the relief of several of the senior medical officers before the completion of their duties at several of the camps. As there were no officers available to replace them, and as War Department orders contemplated the presence of an officer of the Regular Establishment to supervise the work, and particularly to act as sanitary inspector, the medical work of the camp was delayed until officers at other camps had completed their work there and could be sent to replace them. In fact, in one State this duty necessarily devolved upon an officer of the Medical Reserve Corps, although the

War Department had requested the assignment of medical officers of at least the rank of major.

The conscientious manner in which the duties connected with the muster in were performed under most trying conditions and often with inadequate assistance, reflect great credit upon the medical officers and the Medical Reserve Corps officers engaged in them.

Considerable confusion was also occasioned by the issue of the new Manual for the Medical Department after these officers reached the mobilization camps. Some medical officers failed to receive their copies of this new manual. The designation of "camp surgeon" as used by the Surgeon General apparently was not specific enough to designate the regular medical officer for this duty at these camps, as in many instances the commanding officer of the camp designated the senior medical officer of the National Guard as such.

Not being familiar with the designation "camp hospital," officers failed to appreciate the purpose for which it was sent, with the result, in one instance, that its components were distributed to the Medical Department organizations of the National Guard at the camp, and a field hospital, brought into the Federal service, which probably was incomplete, was used as a camp hospital instead.

Some confusion and delay was also caused by instructions that finger prints be made, then that they be not made, and then again that they be made.

The blank forms used by the National Guard differ from each other in the various States, and all differ from those used in the regular service. Mustering officers, few if any of whom had had previous experience in this duty, were unfamiliar with the State blank forms and were in a quandary as to the form required for the muster into the Federal service. Many of them failed to receive copies of the Mustering Regulations. It would seem advantageous to require the National Guard to use in its administration the same forms as are used in the Army.

Owing to the large number of discharges for disability and other causes, recruiting became necessary in order to bring organizations up to the required strength. This service was performed by National Guard officers who had been mustered in for this purpose. The unsatisfactory character of the recruits accepted was evidenced by the fact that many were sent to hospitals for treatment almost immediately after acceptance. Recruit depot posts had been designated to which these recruits were sent. In spite of this fact many cases were sent to civil hospitals for treatment, a procedure that made large inroads upon the Medical Department appropriations.

Medical and hospital supplies were promptly issued from the depots, and in most instances were shipped by express. But one complaint was made to department inspectors concerning inability to secure supplies. This complaint, upon investigation in this office, was found to be based upon the fact that at this camp every medical officer in charge of a medical department detachment or unit felt free to make requisitions for medical supplies which obviously were disapproved in this office, and instructions issued that requisitions should only be forwarded by the officer who had been designated as camp surgeon.

In some of the States organizations brought no ambulances to the camps, which necessitated the hiring of conveyances to transport the sick and disabled cases which could not properly be cared for at the camp hospital from the camps to civil hospitals.

Vaccination against smallpox and typhoid fever was instituted as soon as the troops reached camp, vaccine having been promptly supplied on telegraphic request from this office in all cases. Troops which were sent to the border prior to completion of vaccinations were supplied with vaccine and instructions issued that vaccination be completed en route or upon arrival, as might be indicated.

One case of smallpox occurred in one of the camps on one of our military reservations. The senior medical officer of the Army on duty there very properly attempted to vaccinate the entire personnel of the post, but met with the opposition of the commanding officer, who protested to these headquarters against the proposed procedure. Telegraphic orders were promptly issued from these headquarters directing that every unprotected person upon the military reservation submit to vaccination, and in the case of civilians who refused, that they be removed therefrom.

Two cases of typhoid fever, contracted prior to arrival at the camp, were reported at the mobilization camp, Moorehead City, N. C., and three cases, contracted prior to arrival at camp, were reported at the mobilization camp, Birmingham, Ala., also one death from typhoid was reported at the mobilization camp, Nashville, Tenn.; but so far as reports received in this office are concerned, no case occurred from contact with these.

Among the troops first returned for muster out were three regiments of Infantry of New York State, which had suffered an outbreak of paratyphoid fever contracted at

McAllen, Tex. These regiments were, upon their return, encamped at Camp Whitman. A sanitary inspector was assigned to duty at this camp with instructions to search for all carriers and to supervise the work of vaccinating all the members of the command. To assist him in the work of identifying carriers, two Medical Reserve Corps officers, who are experts in this line of work, were assigned to active duty and directed to report to him. The command was maintained in quarantine, the stools of every individual were examined, and those who developed the disease were transferred to civil hospitals for care and treatment. The carriers were isolated and reported to the State board of health, in compliance with its request, in order that they might keep these cases under observation after muster out and their return to their homes, to prevent spread of the disease to the communities to which the men returned. The work was efficiently and expeditiously carried out with safety to the public. No extension occurred among the troops after their return.

Much adverse comment was made because these troops were placed in camp during cold weather; steps were taken to provide floors for tents and to construct mess shelters. However, before this work was completed one regiment was mustered out at the camp and the others were sent to their armories; the sick were sent to the nearest civil hospital. After arrival at the armories, examinations were continued until all had been examined and cases of the disease disposed of as noted above; the muster out was then completed.

In view of the fact that inspector instructors and sergeant instructors had been on duty with the National Guard, it seems strange that there should have been so much difficulty experienced in making out the prescribed forms and in rendering reports. In the simple matter of personal reports and changes of status, they either neglected to forward them, or incorrect reports were forwarded, entailing considerable correspondence from this office and the issue of circulars in order to obtain the necessary data concerning the personnel of the Medical Department in this department.

There also was almost universal ignorance of the proper method of purchasing supplies in emergency and of securing medical attendance and hospital care for the sick who could not be cared for in camps, or who were taken sick while on detached service. Bills were sent into this office requesting payment without the necessary vouchers, and one junior officer returned a letter of instructions concerning the preparation of vouchers, with the request that the blank be prepared in this office with the necessary correction and that it be sent to the creditor for his signature.

The absence of the regular sanitary inspector from these headquarters was much felt, and if there is to be another mobilization, it would seem essential that one, or preferably two, should be assigned here for the single purpose of making inspections of the Medical Department work and the sanitary conditions of the mobilization camps. This inspection should be made at the earliest possible moment after the arrival of troops and should be as comprehensive as possible. He should have power to correct errors of sanitation of the Medical Department organization on the ground, in the name of the department commander. If possible, he should be accompanied by an experienced civilian clerk and a sergeant first class of considerable service who could instruct the noncommissioned officers in their clerical and administrative duties.

No doubt much was learned by all concerned in the mobilization and muster in of the National Guard, and the experience gained will be of value in future mobilizations. It was apparent that few medical officers of the Guard, when mustered into the Federal service, had an adequate conception of their duties, responsibilities, and requirements.

The department surgeon, Western Department, reports the general health of the troops in that department during the year as having been satisfactory in every respect, no diseases due to insanitary conditions having been reported from any post.

He reports 3,363 admissions to sick report during the year, and an admission rate of 482.3 per thousand as compared with 559.56 in 1915; the mean strength of the department during the period was 6,972.

A total of 6,750 venereal prophylactic treatments were administered during the year. The admission rate per thousand for venereal diseases, as reported by the department surgeon, was 72.29, as compared with 72.59 during the preceding year.

Regarding sanitary conditions and the water supply, the department surgeon states:

The sanitary conditions throughout the department for the year were very good. No inspections were made by the sanitary inspector of the department during the year, owing to the lack of mileage.

As stated in last year's report, the water supply of the Presidio of San Francisco, Fort Winfield Scott, the Letterman General Hospital, Fort Mason, and transport dock is obtained from a small stream (Lobus Creek), very liable to contamination. This water has for some time been subjected to mechanical filtration. Last year it was recommended that a concrete dam and two sedimentation tanks be built to replace the present plant, which is old and inadequate. This recommendation was approved and bids for the new plant will be opened in the near future. A chlorine apparatus was installed September 23, 1916, and has been giving satisfactory service.

To prevent contamination of the watershed in question, relief sewers for flood waters and sewer connection by all residents of the property there is required. Such remedial measures have been taken during the year, and joint periodical inspections of the premises are now made under the continual and joint supervision of the board of health of the city, the surgeon, and the quartermaster of the Presidio.

A strip of land has also been purchased by the Government between Fifteenth and Twenty-fourth Avenues so that the military authorities may take adequate means to protect the watershed of this upland. Furthermore, the city of San Francisco has applied to Congress for the right to maintain a concrete sewer across a portion of the Presidio grounds for storm water, which hitherto has washed much filth into the creek.

The erection of a dam at Twenty-fourth Avenue is also contemplated, which will still further reduce pollution of these waters by reducing the watershed liable to contamination.

One sanitary measure of importance still remains to be taken, however—that is, to secure the balance of the holdings on the south bank of Lobus Creek to the top of the watershed. The extent is to tender this land to the Federal Government in exchange for the land under the Fine Arts Building of the exposition.

The military importance of securing a good water supply here should be clearly appreciated. This is the only running water supply on the peninsula that can not be shut off in time of war. It is adequate to supply all the agencies of the Federal Government, and the only measures in addition to those now being taken and soon to be taken is the acquirement of this land on the south bank of Lobus Creek.

With reference to hospital accommodations at Fort Rosecrans it is stated.

The hospital at Fort Rosecrans is in size entirely inadequate. It is used as a base hospital for the troops at Camp Walter R. Taliaferro, San Diego; Camp Lawrence J. Hearn, at Palm City; the Signal Corps Aviation School and one company of Infantry at Tecate. The hospital is continually overcrowded and many of the patients are being cared for in tents. Estimates for the erection of a 24-bed ward are now being prepared.

The department surgeon, Central Department, reports as follows:

The medical officers in this department December 31, 1916, consisted of 1 colonel, 2 captains, Medical Reserve Corps, 12 first lieutenants, 2 dental surgeons, and 1 contract surgeon.

One lieutenant, Medical Reserve Corps, was ordered on active duty for a limited period in connection with special eye and ear examinations of candidates for the Officers' Reserve Corps, aviation section. There were also present in the department on temporary assignment in connection with muster out of National Guard, 5 captains, Medical Corps, and 1 first lieutenant, Medical Reserve Corps.

There has been felt an acute shortage of medical officers within the department for the larger part of the year, the greater number of posts having been without the services of a medical officer. Medical service has been rendered at a number of the vacated posts by the visit, which generally has been satisfactory. A single complaint emanated from one of the doctors who feels that he has been grossly underpaid for services rendered at a post about 3 miles distant.

The Medical Department enlisted personnel on December 31, 1916, comprised 14 sergeants, first class; 8 sergeants, 1 lance corporal, 5 acting cooks; 22 privates, first class; and 38 privates.

Referring to the caliber of recruits received at one of the stations, the post surgeon reports as follows:

"It is also noted that of 15 recruits, Medical Department, received at this station during the last seven months, only 5 of them have shown sufficient intelligence to learn any of the more intricate duties of a post hospital. Two additional ones have shown great willingness, but are handicapped by a lack of education, and only one probably will succeed in completing satisfactorily a subject in course of instruction now carried on; the other 8 have been more or less worthless and lack intelligence and interest, and when offered opportunity to improve themselves they showed no ambition and failed to make the least effort to take advantage thereof. In general, the recruits received for this detachment seemed far inferior in appearance, etc., to the average received for the line organizations here. It is recommended that recruits for transfer to the Medical Department from companies at recruit depots be selected by medical officers who understand the duties of the enlisted men in their department in order to transfer the right men for the work."

Much of the time (as at present) at nine stations there were two men or less, a number entirely inadequate to properly care for the buildings and property pertaining to the Medical Department. With this limited number, however, such buildings and property have been protected in general.

A large proportion of the privates and privates first class are inexperienced, owing to the fact that the greater number of instructed soldiers were sent to the Southern Department during the year in connection with the mobilization of the National Guard on the Mexican border, they being superseded in a large measure by recruits. The discipline of the corps, considering the large influx of recruits and confusing conditions, was reasonably good.

The changes during the year were:

Gain.

By enlistment.....	8
By reenlistment.....	2
By transfer from other stations.....	119
By transfer from the line.....	6
From desertion.....	4
Total.....	139

Loss.

Discharge by expiration term of service.....	6
Discharge for disability.....	0
Discharge on account of traits of character not suited for the military service (par. 148, A. R.).....	1
Discharge by purchase.....	4
Discharge by sentence of general court martial.....	9
Discharge without honor.....	3
Transferred.....	133
Retired.....	1
Died.....	2
Deserted.....	13
Total.....	172

The loss from all causes exceeded the gain by 33. As formerly expressed, it is obvious that the inducements for service in the Medical Department for enlisted personnel are inferior to those offered in other branches of the service, causing desirable and trained men to leave by transfer and also to reenlist for service in the line. It is hoped, however, that the two new grades established by the act of June 3, 1916, will act as a stimulus and prevent this exodus from the enlisted ranks of the Medical Department.

Owing to the large number of recruits as well as to the constant movement of Medical Department personnel for muster-in and muster-out duty, it has been impracticable to hold more than one examination within the department for promotion to the grade of sergeant.

The depletion of strength of command by transfer from this department to the Southern Department, to which reference has been made in two previous annual reports, has continued.

The average strength of command for 1916 was 1,540.98, a decrease of 1,192.64 from 1915, about 44 per cent. For a number of months there has been no unit (company) with the department.

HEALTH OF COMMAND.

The health of command has been generally satisfactory, the admission rate per thousand being 746.28 against 844.91 for last year. An increase in tonsillitis over last year is noted, although a marked decrease is shown in the admission rate for influenza.

An extensive epidemic of whooping cough prevailed among the children at Fort Leavenworth during March and April; no cases occurred among the troops. Two cases of scarlet fever are also reported from Fort Leavenworth among the children of the post. There were also present at the post four cases of mumps, two in recruits who had contracted the infection before arrival at the post and two among the Quartermaster Corps detachment. Four cases of measles occurred at Fort Leavenworth in recruits who had contracted the disease before arrival, and four cases also occurred among children, confined to two families, the source of infection being reported at the town of Leavenworth. Necessary measures were taken to isolate all infectious diseases in hospital in case of troops and quarantine steps taken in case of families. No spread occurred except in the case of whooping cough epidemic, although this did not assume serious proportions.

Fort Riley reports a number of cases of smallpox and infantile paralysis in the vicinity of the reservation, but prompt measures of quarantine in each case safeguarded the garrison against infection.

The total admissions to sick report from disease and injury were 1,150, an admission rate of 746.28 per thousand. Thirteen thousand nine hundred and sixty-one days were lost by sickness, making a constantly noneffective rate per thousand from all causes of 24.82.

The chief causes of admission to sick report were:

Tonsillitis.....	134
Gonorrhœa and sequelæ.....	81
Influenza.....	64
Bronchitis.....	57
Rheumatism.....	39
Syphilis.....	31
Alcoholism.....	25
Eye, diseases of.....	14
Ear, diseases of.....	12
Measles.....	12
Tuberculosis.....	11
Venereal ulcer and sequelæ.....	10
Appendicitis.....	9
Dysentery.....	8
Malaria.....	7
Mumps.....	6
Pneumonia.....	4
Diarrhea.....	3
Diphtheria.....	1

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There has been no case of typhoid fever in the department during the year among the Regular Establishment. Two cases occurred at Fort Snelling, Minn., among the First Minnesota Field Artillery.

Number of cases in which typhoid prophylaxis was administered during the period, Jan. 1 to Dec. 31, 1916..... 273

The admission rate for venereal disease for the year was 79.17, an increase over the rate reported for last year, which was 63.29. The increased rate, in the opinion of this office, may logically be ascribed to the absence of line and medical officers of the regular service from most posts, as well as the large proportion of cases sent from recruiting stations for treatment.

SANITATION.

The posts in this department, all with garrisons depleted, have been caring for themselves with more or less difficulty owing to the shortage of personnel. General sanitary conditions are reported as being excellent. There is nothing of special note to report under this head.

Fort Leavenworth announces that the water supply in general has been satisfactory, although overdosed with hypochlorites at times.

Owing to the removal of the department laboratory to the Southern Department, all bacteriological and other examinations have been made at the Army Medical School, Washington. In consequence, fewer routine examinations of water have been made.

The smoke nuisance previously reported by Fort Leavenworth continues unabated. This post reports that the central heating plant was completed more than a year ago, but that no furnaces have been installed in that building; as a result the hospital is constantly filled with smoke and soot from the soft coal burned in the furnaces in the hospital building.

The surgeon at Fort Riley, in referring to construction and repairs of hospitals and quarters for sergeants, first class, states:

"Nothing was allowed for the year for the latter, and only storm sashes for the isolation hospital (which is unoccupied), also a few lockers for the cleaning material on porches of main hospital were added. All other repairs were not allowed, and the buildings affected have therefore deteriorated much more rapidly than they would had necessary repairs been allowed."

There were 13 deaths during the year, with a ratio of 8.44 per thousand, a decided increase over that of last year, 2.6 per thousand.

Eighteen men were discharged on certificate of disability, nine not in line of duty.

Twenty men were transferred to the general hospitals for observation and treatment and two sent to the Government Hospital for the Insane, Washington, D. C.

MILITIA.

Largely due to the assignment of regular officers to each camp of mobilization, general health of militia organizations in camp was entirely satisfactory, as reflected in sanitary reports submitted through this office. Consequent on the establishment of mobilization camps in the 14 States within the geographical limits of this department, 58 Medical Reserve Corps officers were called into active service for examination in connection with muster in of the militia. Sixteen officers of the Medical Corps were assigned to the mobilization camps as general supervisors. Thirty-six enlisted men of the Medical Department were also assigned to these camps from posts within this department.

Conditions at camps, as regards sanitary arrangements for general safeguarding of the health of the militia, were on the whole quite satisfactory, no serious epidemics being reported. A general lack of sanitary material was noted in the case of Ohio troops.

Smallpox and typhoid protection was, in general, promptly accomplished with the necessary vaccines shipped from Washington and elsewhere. The field and regimental hospitals, issued without requisition to serve as camp hospitals, usually arrived after improvisation of camp hospitals from militia equipment. Owing to the priority of arrival of militia medical officers at most of the mobilization camps, the title and duties of "camp surgeon" remained with them even after the arrival of Regular medical officers, although it was the desire of the department surgeon that such Regular officers should supersede, both nominally and actually, militia medical officers, as directed in paragraph 593, Militia Medical Department, 1916. However, the conduct of muster in physical examinations alone, under the urgent conditions obtaining, required such constant supervision by the Regular medical officers that the first incumbent was usually allowed to continue in the office of camp surgeon. Owing to the press of work in this office consequent on mobilization, and due to the fact that the sanitary inspector was assigned to duty at Fort Benjamin Harrison as camp surgeon, it was not practicable for the department surgeon or the sanitary inspector to make inspection of mobilization camps.

The large percentage of rejections at the muster in physical examinations in some of the State camps appears to the department surgeon as the most disappointing and discreditable feature of the mobilization, indicating that the enlistment examinations had been nominal and superficial.

The department surgeon, Southern Department, states:

The following report of the operations of the Medical Department in the Southern Department is submitted as a general survey only of work done and results attained over a wide extent of territory and with troops of all degrees of experience and training. The more important special reports on which this communication is based, which are sent herewith, will give in more detail what is here reported in brief. Certain important data concerning health of troops during the early months of 1917 are included in this report, but figures given are only approximately correct, as at the time of writing, all returns are not in the office. On April 1, the demobilization of

the Militia was practically over in so far as the Southern Department is concerned, and it is thought best to include such data as may prove valuable in view of the prospective organization of a great army for the defense of the country.

PERSONNEL.

Officers of the regular Medical Department, including lieutenants of the Medical Reserve Corps, reached a maximum of 356 in the Southern Department.

Of mobile sanitary units, there were six permanently organized field hospitals and six ambulance companies, to which three each have been added with provisional organizations. All of the permanent units are now supplied with motor transportation; the provisional organizations as yet having animal-drawn vehicles.

Deducting all Regular officers whose duties were altogether with militia, all the extra personnel at base and camp hospitals made necessary by militia patients, and a few stationed at remote outpost camps, there have never been enough to furnish the authorized quota for the Regular force in the department, and of the mobile units only half the authorized number were at first available, increased later to three-fourths requisite number by organization in the Southern Department of three provisional field and ambulance companies.

The expedition into Mexico was much better supplied with medical personnel than the Regular troops remaining north of the border, but even in this column it was not always easy to maintain an allowance of two medical officers to a regiment, and the regiments on the American side were often reduced to one medical officer, a lieutenant of the Medical Reserve Corps. To the last-named troops, of course, well equipped camp and base hospitals were easily accessible.

Medical officers of Militia attained a maximum number of 559 and about one-half only of the necessary field sanitary units were mustered into the United States service.

The number of militia medical officers fluctuated greatly by loss from resignation, not always compensated for by new appointments.

It is a conservative statement that had all the United States forces in the department been called upon to advance into Mexico, the shortage of medical officers, Regulars and Militia, would have been about 600. This estimate takes into consideration the necessary medical personnel at headquarters of field armies and divisions, evacuation hospitals, trains, and a proper service of the base, as well as a full quota for regiments, separate companies and battalions, and, of course, the authorized number of field hospital and ambulance companies for 13 divisions and nine independent brigades.

As it fortunately happened, the medical force, Regulars and Militia, was sufficient to cope with the situation, both in the admirably managed expedition into Mexico and throughout the large camps in the Southern Department.

Of Regular dental surgeons, there was a maximum of 43. Dental officers of militia were almost nonexistent at first, but finally 56 were mustered into service and reported for duty before all of them could be supplied with equipment, as dental engines seemed to be almost unobtainable in the United States.

During the beginning of the mobilization, the Regular dentists were almost overwhelmed with work, but toward the close of the year the work was well in hand for all troops.

The faithful and efficient work of the medical and dental officers is worthy of all praise. Few, indeed, have failed to meet the many and new responsibilities which were imposed upon them.

During the height of the mobilization many of the brightest young physicians and surgeons of the country gave their services as officers of the Medical Reserve Corps. When it became apparent that active war was not impending, many of these men were relieved from active service in order to resume their important duties in civil life. Some have successfully passed the examinations for the Medical Corps and many excellent ones remain, barred by age from the Regular corps. A large proportion of the Medical Reserve Corps who have proved themselves on the border have been recommended for higher grades in the Officers' Reserve Corps. Some physicians were enrolled in the Medical Reserve Corps and sent to the department who were entirely unfitted by old age, physical disability, temperament, or education for the position of a medical officer, but the proportion to the whole number of Medical Reserve Corps officers was very small.

The medical officers of militia were almost invariably high-grade men of excellent professional attainments. From them were drawn for service at some of the largest camp hospitals, surgical operators, pathologists, and specialists of the most efficient type.

There is also no lack of theoretical knowledge of military hygiene and camp sanitation on the part of the large majority of militia medical officers, some of whom have

gained much experience at camps of the National Guard. The weak points are in military medical administration, and especially in the rendering and keeping of reports and records of sick and wounded and the handling of other essential papers.

It is hard for an officer who has not grown up in the service from lieutenant to major to grasp the fact that the "red tape" of the Army is the result of years of experience and is really the simplest way yet devised of "running the machine" under the law with justice to the Government and the individual, even though the system is still susceptible of much simplification.

In his professional dealings with his patients, who are generally from his own section of home territory, and to a less degree in his sanitation work, the medical officer of militia is much handicapped in doing his duty "without fear or favor." In pronouncing upon cases "not in line of duty" or in recommending sick leaves, sick furloughs, transfers to hospitals, etc., he must constantly confront the dilemma of either deciding against his real opinion or risking his popularity and professional success in civil life.

This is a hard position in which to be placed, but it is inseparable from the system of using for United States service troops with concentrated local influence, political or social.

Another handicap is the absence of trained noncommissioned officers for the preparation of reports and records. Enlisted men with clerical experience in civil life are readily obtainable from the ranks of the militia, but they must be trained for their military duties by medical officers to whom the paper work of the Medical Department is utterly unfamiliar.

The experience gained by the medical officers and enlisted men of the militia during the mobilization of 1916 has been invaluable in spite of handicaps, and their services, if again needed, will prove a very valuable asset to a large National Army.

The maximum of enlisted noncommissioned officers and men of the Medical Department was 3,045, and of militia 4,144. A casual camp for recruits of the Medical Department was maintained at Fort Sam Houston and one at Fort Bliss, to which a sufficient number of men were supplied as needed and from which they were distributed after a brief period of training. Considering the rawness of this personnel, very good discipline prevailed at the hospitals, and excellent progress was made in training a really valuable force. The lack of old, experienced, noncommissioned officers in the Medical Department stimulated efforts to train and promote the best privates, with tolerably good results. Many of the best sergeants and sergeants first class were needed to check and supervise the medical records of militia organizations at the offices of district surgeons, and many more could have been used to advantage in the training of the militia in proper preparation of papers and records. The creation of noncommissioned officers with limited warrant in the mobile units released many valuable men for other uses.

The enlisted personnel of the Medical Department in the militia was of high quality, containing many medical students of good education, but inexperienced for the most part in the duties required of them, oftentimes expecting to perform professional work only proper for officers and occasionally resenting or neglecting the humbler but just as necessary duties of attendants and laborers. Some State organizations reported without medical personnel of any kind, but in course of time the deficiency was in part made up by transfer of enlisted men of the line.

The conduct of the enlisted force was admirable, as, indeed, was that of the militia soldiers generally throughout the department. Whatever the defects of the militia system, the men were a splendid body of Americans from the standpoint of personal behavior.

The maximum number of female nurses was 251, of which 67 were members of the Army Nurse Corps and 184 were reserve nurses furnished through the Red Cross.

Nurses were on duty in five base hospitals and six of the larger camp hospitals. Their services have been uniformly excellent. The Army thoroughly appreciated the ministrations of these fine women, and the reserve nurses cheerfully adapted themselves to the discomforts of border service.

There was but one incident of insubordination and desertion among the nurses reported to this office.

STRENGTH, SICKNESS, AND MORTALITY.

STRENGTH.

The strength of the command in the Southern Department during the calendar year 1916 varied from a minimum in February, 1915, of 26,068 officers and enlisted men, all of the Regular Army, to a maximum in August of 158,569 officers and enlisted men, regulars and militia.

At the end of the year the regular troops had reached the maximum strength of 49,164, and the militia, which had attained its greatest strength of 110,526 in August, was reduced to 82,174.

The mobilization of the militia began in May with the muster into Federal service of troops from Texas, Arizona and New Mexico, of whom about 5,000 were secured in May and June.

On June 18, the entire National Guard of the States was called out at home stations, and by the end of July, 105,137 were distributed in large camps along the border. The number of militia increased during August to 110,526 and diminished gradually to the end of the year by the loss of certain organizations sent home for muster out, a loss which was partially compensated for by the arrival of new troops which had been held for training at the home camps. Altogether about 130,000 State troops served in the Southern Department during the year 1916.

The demobilization of the Militia has been carried on as rapidly as possible since the close of the calendar year and was very nearly completed on April 1, 1917, at which time all the Militia organizations except those of the States composing the Southern Department, had left the department for muster out.

The handling of such a large number of newly-raised troops, in addition to about 47,000 regulars called for extraordinary efforts on the part of the Medical Corps along the lines of camp inspection and sanitation; supplies, erection of temporary hospitals for the care of the sick, and instruction of officers and men of the sanitary troops with Militia regiments, and of the mobile field units.

HEALTH OF TROOPS.

The statistical tables and reports of medical officers accompanying this report will show how successful the efforts to guard the health of the troops, to care for the sick, and to instruct the sanitary personnel have been. Beginning with July 31, when the strength of troops was nearly at its maximum, weekly statistical reports of sick were wired to the Surgeon General, a survey of which shows a sick rate for regulars from 10.8 to 35 per 1,000 and for militia from 9 to 31 per 1,000. At the end of the year the rates for the regulars and militia equal, namely, 31 per 1,000. These rates compare favorably with the lowest attained in the Army in time of peace, and show quite clearly that camping on the border has involved no more risk to life and health than if the troops had stayed at home.

The Southern Department, comprising as it does a wide extent of country with much diversity of climate, presents a number of special problems in connection with season and terrain to be taken into consideration in the sanitary care of troops.

During the hot season, the troops in the Brownsville district were subjected to intense heat and torrential rains, causing almost bottomless mud, which, with mosquitoes and an unusual plague of flies, made this section most uncomfortable for camp life. With the advent of winter, the climate in this section becomes delightful.

The western districts—El Paso, New Mexico, Deming, Arizona, and Nogales—have a dry summer climate, healthful and invigorating in spite of heat, but during the late autumn the nights become very cold; in winter the weather is at times very disagreeable, lasting well into spring. The weekly sick rates by districts show to a limited extent the effect of season and climate upon the health of troops, but other conditions resulting from special duties of troops and from the limited outbreak of certain infections, for example, paratyphoid fever and malaria in Brownsville district played a greater part than climate and season.

A serious outbreak of pneumonia and the present epidemic of influenza, measles, and mumps in western districts are exceptions. Here camp life, partly on account of climatic conditions, favored the spread of the infections and was a principal existing cause of pneumonia and other acute respiratory diseases.

A brief survey of the weekly sick reports of districts shows for the calendar year 1916 that highest rates for both regulars and militia were reached in November and December.

Districts.	Highest rate per 1,000 weekly, 1916: Season.			
	Regulars.	Militia.	Regulars.	Militia.
Brownsville.....	31	35	November.....	November.
New York division (militia).....	.....	30	.....	Do.
San Antonio (Camp Wilson).....	39	33	December.....	September.
Laredo.....	37	28	September.....	December.
Eagle Pass.....	42	27	December.....	November.
Del Rio.....	34	.....	September and November.	.....
Big Bend.....	46	50	December.....	December.
El Paso.....	34	43	do.....	Do.
New Mexico.....	36	54	do.....	Do.
Arizona.....	38	50	do.....	Do.
Nogales.....	48	101	do.....	Do.
Expeditionary force in Mexico.....	29	.....	November.....	.....

Unfortunately, the favorable sick rates for the calendar year 1916 have not continued into 1917. The wide prevalence of influenza, measles and mumps in the western districts, the incidence of pneumonia and bronchitis in the same territory have greatly raised the figures for both sickness and mortality.

Many of the militia regiments in that part of the department were late comers from the Southern States, and arriving at the beginning of cold weather, suffered keenly from the change of climate. Among the men, mostly from rural districts, were many nonimmune to measles and mumps, and as these diseases are widely spread in the border towns, troops at Deming, El Paso, Nogales, and Douglas were seriously affected. Lobar pneumonia appeared and has proved the principal cause of mortality. Bronchopneumonia and empyema have been serious complications in measles.

The rise in sick rates has manifested itself mainly in the militia and during January, February, and March have reached the maximum figure at Nogales (among Alabama troops) of 113.2 per 1,000, and for regulars at the same place 57.7 per 1,000.

During the same months the Brownsville district, enjoying beautiful winter weather, has not exceeded the rate of 25 per 1,000 for either militia or Regulars.

At Camp Wilson, adjoining Fort Sam Houston, sick rates increased materially in January, February, and March, due to measles, which is very prevalent in San Antonio, and which, in this camp, affected principally the Alabama and Mississippi troops.

High rates for Camp Wilson have been in January, February, and March, 39.8 for regulars and 59.7 for militia.

The great difference between organizations in this camp is shown by the enormous rate for measles in two regiments—First Alabama Cavalry and First Mississippi Infantry, which, with 2,411 strength, had 274 cases of measles, or 12.9 per cent; all the other troops in camp (strength, 6,951) showing only 0.66 per cent of measles.

MORTALITY.

In the year 1916, there were 232 deaths among Regular troops, of which 149 were from injuries of all kinds, including deaths in action in the Mexican expedition.

The rate per 1,000 was 3.65 from injury and 2.03 from disease, a total rate of 5.68.

For the eight months of 1916 in which militia were in the Southern Department, there occurred among them 156 deaths, of which 43 were from injury and 113 from disease.

Averaging the strength of the State troops as 76,645, there is shown a death rate of 2.03 per 1,000 for the period May–December, 1916, or for disease 1.47 and for injury only 0.56.

Except for the heavy incidence of pneumonia, which began in December, the mortality rates of both Regulars and militia would have been considerably lower, but as has been already mentioned, this disease beginning in epidemic form in December, has taken a heavy toll during the first three months of 1917.

HEALTH STATISTICS.

Admissions during calendar year 1916 for the following diseases:

Mean strength	40,732
Total admissions to sick report during 1916	30,004
Days lost on account of sickness during 1916	360,439
Constantly noneffective during 1916	984.81

	Admis- sions.	Ratio per 1,000.		Admis- sions.	Ratio per 1,000.
Malaria	729	17.79	Nervous diseases	550	13.50
Typhoid	11	.27	Pneumonia	78	1.91
Paratyphoid	103	2.53	Tonsillitis	2,136	52.44
Variola	7	.17	Respiratory disease	1,834	45.03
Measles	308	7.56	Digestive diseases	5,476	136.89
Diphtheria	21	.51	Injuries	5,463	134.12
Scarlet fever	10	.23	Gunshot wounds from automatic pistol	195	4.79
Influenza	995	24.43	Gunshot wounds, rifle	41	1.01
Entamoebic dysentery	150	3.68	Skin diseases	1,393	34.20
Dysentery, bacillary	39	.96	Dengue	1,473	36.16
Tuberculosis, pulmonary	139	3.41	Mumps	70	1.72
Syphilis	827	20.30	Sunstroke	32	.79
Chancroid	1,327	32.58	Other diseases	2,297	56.36
Gonorrhea	3,583	87.97			
Rheumatic fever	404	9.92			
Alcoholism	280	6.87			
Insanity	33	.81	Total	30,004	.....

Deaths, Regulars, from January 1, 1916, to December 31, 1916.

Cause of death.	In line of duty.	Cause of death.	In line of duty.
Diseases:		Diseases—Continued.	
Arteriosclerosis	1	Typhoid fever	1
Angina pectoris	1	Tumor of brain	1
Abscess of liver	1	Tuberculosis, pulmonary	1
Atrophy of liver	1	Uremia	4
Cardiac dilatation	3	Total	77
Cerebral hemorrhage	4		
Dysentery, bacillary	1	Injuries:	
Dysentery, entamoebic	2	Drowning, accidental	8
Dysentery, type undetermined	1	Electrocution, accidental	1
Enterocolitis	1	Ether narcosis	1
Empyema	2	Fractured skull, accidental	9
Erysipelas	1	Fractured vertebra, accidental	2
Intestinal obstruction	1	Gunshot wounds—	
Ludwigs angina	1	Accidental	15
Laryngitis	1	Assault	11
Meningitis, pneumococcic	1	Self-inflicted (melancholy)	4
Meningitis, cerebrospinal	3	Mexican bandits	25
Meningitis, septic	1	Snipers	6
Meningitis, tuberculous	1	Lightning stroke	2
Miscellaneous	5	Miscellaneous	8
Malaria, tertian	1	Ruptured kidney	1
Nephritis	1	Sunstroke	1
Peritonitis	10	Total	94
Pericarditis	2		
Pneumonia, lobar	16	Total number of deaths, in line of duty	171
Pneumonia, broncho	1		
Pyemia	1		
Ruptured spleen	1		
Septicemia	4		

Deaths, Regulars, from January 1, 1916, to December 31, 1916.

Cause of death.	Not in line of duty.	Cause of death.	Not in line of duty.
Diseases:		Injuries—Continued.	
Pneumonia, lobar.....	1	Gunshot wounds—Continued.	
Syphilis, tertiary.....	4	Homicidal.....	8
Tumor, type undetermined.....	1	Miscellaneous.....	8
Total.....	6	Suicide—	
Injuries:		Automatic pistol.....	9
Alcoholism.....	2	Hanging.....	1
Alcohol, poisoning.....	1	Methyl alcohol.....	1
Drowning, accidental, while on leave.....	3	Rifle.....	17
Fractured skull.....	3	Total.....	55
Gunshot wounds—		Total number of deaths, not in	
Accidental, while on leave.....	2	line of duty.....	61

Discharged on certificate of disability during 1916.

REGULARS.

	In line of duty.	Not in line of duty.		In line of duty.	Not in line of duty.
Neurasthenia.....	2	3	Exophthalmic goiter.....	4	7
Defective vision.....	11	18	Neuritis.....	1	2
Appendicitis.....	1	4	Hypochondriasis.....	8	14
Nephritis.....	4	1	Nervous diseases.....	1	64
Fractures.....	13	4	Mouth diseases.....	10	6
Atrophy.....	1	17	Venereal diseases.....	2	6
Urinary diseases.....	1	1	Digestive diseases.....	5	3
Keratitis.....	1	16	Varicose veins.....	2	1
Defective mental development.....	1	46	Paralysis.....	2	1
Rhinitis.....	7	23	Rheumatism.....	1	1
Dementia precox.....	8	33	Lymphatic diseases.....	1	1
Heart disease.....	33	4	Dysentery.....	2	3
Epilepsy.....	16	45	Arteriosclerosis.....	2	1
Injuries.....	43	9	Drug habit.....	2	1
Diseases of joints, bones.....	10	11	Skin diseases.....	1	1
Diseases of ears.....	6	66	Meningitis, cerebrospinal.....	1	1
Hernia.....	1	20	Sweaty feet.....	1	1
Flat feet.....	8	3	Tuberculosis.....	170	435
Respiratory diseases.....					
Alcoholism.....					

Admissions during period May 1, 1916, to December 31, 1916, for the following diseases:

MILITIA.

[Mean strength, 76,645.]

	Admissions.	Ratio per 1,000.		Admissions.	Ratio per 1,000.
Malaria.....	1,212	15.81	Insanity.....	19	25
Typhoid fever.....	33	4.33	Nervous diseases.....	1,212	15.81
Paratyphoid fever.....	247	3.22	Pneumonia.....	114	1.48
Varicella.....	3	.04	Tonsillitis.....	2,447	31.93
Measles.....	477	6.22	Respiratory diseases.....	5,661	73.78
Diphtheria.....	29	.40	Digestive diseases.....	11,966	156.12
Scarlet fever.....	5	.07	Injuries.....	6,012	78.44
Tuberculosis, pulmonary.....	96	1.25	Gunshot wounds, automatic pistol.....	56	.74
Influenza.....	2,310	30.14	Gunshot wounds, rifle.....	39	.51
Dysentery, entamoebic.....	13	.17	Skin diseases.....	2,683	35.00
Scarlet fever.....	28	.37	Dengue fever.....	3,159	41.22
Syphilis.....	406	5.30	Mumps.....	130	1.70
Chancroid.....	589	7.68	Stroke.....	17	.22
Gonorrhea.....	2,399	31.30	Other diseases.....	8,214	107.17
Rheumatic fever.....	904	11.79			
Alcoholism.....	108	1.40		50,578	660.00

Deaths, Militia, from May 1, 1916, to December 31, 1916.

Cause of death.	In line of duty.	Cause of death.	In line of duty.
Diseases:		Diseases—Continued.	
Appendicitis.....	2	Rupture of liver.....	1
Abscess of liver.....	1	Septicemia.....	2
Cardiac dilatation.....	2	Toxemia, cause not given.....	2
Cardiac hypertrophy.....	1	Tuberculosis, military.....	2
Dysentery, bacillary.....	1	Tumor of brain.....	1
Dysentery, entamoebic.....	1	Ulcer.....	2
Dysentery, type undetermined.....	3		
Diabetes mellitus.....	2	Total.....	104
Endocarditis.....	2		
Embolus.....	1	Injuries:	
Erysipelas.....	1	Drowning, accidental.....	8
Fever, type undetermined.....	1	Fractured skull, accidental.....	3
Enterocolitis.....	1	Fractured vertebrae, accidental.....	1
Intestinal obstruction.....	2	Gunshot wounds—	
Meningitis, cerebrospinal.....	4	Accidental.....	8
Meningitis, type undetermined.....	5	Blank cartridge.....	1
Miscellaneous.....	5	Assault.....	4
Nephritis.....	3	Miscellaneous.....	2
Peritonitis.....	12	Sunstroke.....	2
Pneumonia, lobar.....	26		
Pneumonia, broncho.....	9	Total.....	30
Pulmonary abscess.....	1	Total number of deaths in line of duty.....	131
Pemphigus.....	1		
Paratyphoid.....	4		

Deaths, Militia, from May 1, 1916, to December 31, 1916.

Cause of death.	Not in line of duty.	Cause of death.	Not in line of duty.
Diseases:		Injuries—Continued.	
Cirrhosis of liver.....	1	Gunshot wounds—	
Cardiac dilatation.....	2	Military police.....	1
Diabetic coma.....	1	Carelessness.....	1
Meningitis, tuberculous.....	1	Suicide—	
Peritonitis.....	1	Automatic pistol.....	2
Septicemia.....	1	Rifle.....	2
Syphilis, cerebrospinal.....	1	Phenol.....	2
Tumor, type undetermined.....	1	Total.....	13
Uremia.....	1	Total number of deaths not in line of duty.....	26
Miscellaneous.....	2		
Total.....	12		
Injuries:			
Drowning, violation orders.....	1		
Drowning, while intoxicated.....	1		
Fractured skull.....	1		

RECAPITULATION.

REGULAR ARMY.

Average strength (January–December, 1916).....	40,732
Admissions.....	30,004
Days lost.....	360,439
Constantly noneffective.....	964.81
Deaths:	
Disease.....	83
Injury.....	149
	232
Discharge for disability:	
In line of duty.....	170
Not in line of duty.....	435

MILITIA.

Average strength (May–December, 1916).....	76,645
Admissions.....	50,578
Days lost.....	401,256
Constantly noneffective.....	1,637.78
Deaths:	
Disease.....	113
Injury.....	43
	156
Discharge for disability.....	1,713

SPECIAL DISEASES.

Typhoid fever.—Forty-four cases were reported for the period; 11 for Regulars with a ratio of 0.27 per 1,000, 33 for militia with a ratio of 0.43 per 1,000. Some of these individuals were unprotected, some were inoculated with State vaccines not beyond suspicion of imperfect preparation or administration, while a few had been thoroughly vaccinated at a recent date.

Seven cases developed in the punitive expedition; one was unprotected and the others had received the prophylaxis from two and one-half to five years before. There were seven cases at Terlinqua, Tex., in the Big Ben district. The first two (civilian employees) were unprotected, and the one death which resulted was in the remaining five protected cases—a first lieutenant, Medical Reserve Corps, on December 12, 1916, who had also a history of a previous attack of typhoid fever.

Typhus fever.—No typhus fever occurred among troops, which is gratifying, as it is known to be present in El Paso and very prevalent in northern Mexico. Many of the troops must have been more or less directly exposed to it. So far as reported, only one case, in a civilian employee (Mexican), was treated by the Army.

Paratyphoid fever.—This disease is common throughout the more densely populated sections of the department. There were 450 cases up to December 31. Ninety-three of these were from the punitive expedition, but the division surgeon thinks several times as many really developed in the guise of mild continued fevers which could not be accurately diagnosed in the field. The disease ceased after the command received the paratyphoid prophylaxis.

Upward of 175 cases were from the New York division stationed at McAllen, Tex., and vicinity. Of these, more than 60 were from the Fourteenth New York Infantry, 20 to 30 from the Second, Twelfth, and Sixty-ninth Infantry of the same State, and the rest from 14 other organizations.

The command, with possibly a few exceptions, due to return of organizations to their home State for muster out, was inoculated with mixed vaccines of paratyphoid "A" and "B." As some cases occurred about the same time at the nearby camps of Donna, Llano Grande, and Mercedes, these commands were also immunized. The admission rate was highest in October and November. The administration of the prophylaxis was nearly completed by December 1 and thereafter only an occasional case of paratyphoid appeared.

Maj. C. LeR. Cole, Medical Department, was sent with a portable laboratory outfit to study the disease in the Brownsville district, and an extensive report is now being prepared for publication by Lieut. Col. F. P. Reynolds, the general sanitary inspector of Brownsville district, and Majs. Siler and Cole and Lieut. Schule, all of Department Laboratory No. 1. Outbreaks of paratyphoid have appeared in the United States no doubt many times, but the intensive study of an outbreak with such a large number of cases has not yet been recorded.

Malarial fever.—There were 1,941 cases for both Regulars and militia, but many of these were recurrences, the infection having originated elsewhere than at border stations. However, the rate was less by 9 per 1,000 than the whole Army in 1915.

Measles.—Up to the 31st of December, 785 cases were reported, which gives nearly the same rate as for the Army in 1915. The presence of nonimmune soldiers in overheated and improperly ventilated tents during cold weather seems to be the chief factor in the spread of the disease. Respiratory complications were most common in the colder regions. At the camp hospital, Deming, N. Mex., malaria was found microscopically in 50 per cent of pneumonias, complicating measles.¹ From January 1, 1917, to April 1, 1917, 1,295 admissions have been recorded, 720 of them being from El Paso and Nogales districts alone.

Smallpox and scarlet fever.—Nothing of interest was noted with reference to smallpox and scarlet fever. There were 10 cases in all of the former and 15 of the latter.

Diphtheria.—Fifty cases of diphtheria occurred up to December 31. Whenever it appeared routine throat examinations revealed a number of carriers; the disease was mild and easily controlled.

Influenza.—There were 3,305 cases of influenza, Regulars and militia included, which is about 7 per 1,000 less than for the whole Army in 1915. From January 1 to April 1, 1917, 2,722 more admissions occurred; 1,943 of these were from the El Paso and Nogales districts. These last figures only indicate cases so far recorded from sick and wounded reports in this office, and many reports are still to be received. The figures given are therefore far too low. This disease and other respiratory infections

¹ As Deming is in absolutely nonmalarious territory these were cases of "latent" malaria in the Arkansas National Guard.

were most prevalent in the colder districts, but the admission rate was generally lowered when assemblages in amusement rooms, theaters, etc., were prohibited and proper ventilation of tent quarters was enforced. It is almost impossible to control the tendency of soldiers to live in tightly closed overheated tents during cold weather. One reason for this is that some articles of uniform clothing and bedding as issued for winter use are of insufficient weight and too loosely woven to retain body warmth.

Pneumonia.—In November and December, 1916, the sick and mortality rates for both Regulars and militia began a disquieting rise on account of lobar pneumonia and broncho-pneumonia, the latter-named disease generally a complication of measles or influenza.

For the Regulars in 1916 there were 78 admissions and 17 deaths; for militia, 114 admissions with 38 deaths. (The admission rates are below the actual because transfer cards and changes in diagnosis have not been tabulated in this office for statistical purposes, so that many cases marked on original admission as "undetermined" or "influenza" were treated later in hospital as pneumonia.)

In the early months of 1917, January, February, and March, pneumonia of both kinds reached the proportions of a veritable epidemic in the mountainous western districts of El Paso, Deming, New Mexico, and Arizona. Pneumonia was coincident with an extensive epidemic of measles, mumps, and influenza among the civil population as well as among the troops.

Lobar pneumonia was occasionally and broncho-pneumonia generally a complication of measles or influenza.

In the eastern districts of the department where measles was also epidemic, a moderate incidence of pneumonia only occurred.

In the above-mentioned western districts, much of the militia came from far Southern States, arriving late in October, unaccustomed to the great diurnal changes of a dry mountain climate.

The return of the expeditionary force from Mexico brought back a body of men who had been most carefully looked after but whose reserve strength had been lowered by the long and anxiety-breeding service in Mexico. The men were starving for amusement and naturally were exposed to infection at moving-picture shows and other public places.

The figures for sickness and mortality in the El Paso, New Mexico, and Arizona districts and at Deming, from the beginning of the epidemic in November to April, 1917, when it ceased, are as follows, from base and camp hospitals:

	El Paso.		Deming.		Douglas.		Nogales.	
	Regulars.	Militia.	Regulars.	Militia.	Regulars.	Militia.	Regulars.	Militia.
Lobar pneumonia:								
Admissions.....	182	203	2	52	23	5	10	134
Deaths.....	33	39	.....	3	2	.....	1	25
Broncho-pneumonia:								
Admissions.....	5	8	.....	20	15	6	.....	14
Deaths.....	3	6	.....	12	2	2	.....	4

A total in these districts of 679 cases of all pneumonias with 132 deaths, of which 68 cases and 29 deaths, are broncho-pneumonia usually as a complication of measles. Everything possible was done to check the spread of pneumonia, even to quarantining some of the camps and forbidding the soldiers to visit the towns. The tentage allowance was increased and intensive inspection of tent ventilation at night was instituted.

At El Paso, Department Laboratory No. 2 undertook the differentiative of type of pneumococcus in 150 cases, and serum treatment was given in nearly as many.

Type.	Prevalence of type.	Mortality.
I.....	Percentage.	
II.....	56	14.8
III.....	20	30
IV.....	2	33
	20	13.3

An interesting and timely report on this work by Maj. Henry J. Nichols has been forwarded for publication.

Dysentery.—Entamoebic dysentery is endemic in the El Paso district and in the area occupied by the punitive expedition. This force was composed of Regulars, which probably accounts for the greater number among them, although some were no doubt relapses, the initial infection having been contracted in our tropical possessions. The Regulars had 150 and the militia 13 admissions. Eighty-seven cases of bacillary dysentery were also reported. A report on entamoebic dysentery in the El Paso district has been published by Maj. Craig, Department Laboratory No. 2.

Camp diarrhea.—Camp diarrhea prevailed among nearly all of the militia troops shortly after arrival at border stations, but subsided quickly as the men became adjusted to the changed environment. The most common cause was fermentative disturbance resulting from improper preparation and use of the ration, but in some instances the exciting irritant was probably alkaline drinking water, highly impregnated with certain mineral salts to which many men were unaccustomed.

Pulmonary tuberculosis.—The Regulars, with 139 cases (3.41 per 1,000), did not exceed the rate for the whole Army for 1915. The militia had a much lower rate (1.25 per 1,000) or 96 cases.

Hookworm.—The First Alabama Cavalry and the First Mississippi Infantry, at Camp Wilson, showed during January, February, and March, such large sick rates compared with troops from Northern States and with the Regular regiments in camp, that suspicion of some underlying cause of a general nature weakening the average resistance of these men to disease was aroused. No admission for the clinical symptoms of uncinariasis had occurred, but at the instance of the division surgeon, Twelfth Provisional Division, a survey of these troops was made to determine the presence of hookworm, and accomplished by Department Laboratory No. 1, with the assistance of regimental officers.

Examinations of samples of feces of 2,692 men were made with following results:

	First Ala- bama Cav- alry.	First Mississippi Infantry.	Fourth Texas Infantry.
Strength.....	1,180	1,172	1,100
Number examined.....	911	805	898
Per cent positive.....	54	32	6
Minimum (in company).....	13	12	.....
Maximum (in company).....	78	53	21

Companies from rural districts showed highest rates. The findings were negligible in troops from dry regions of Texas.

The unusually large mortality of the Alabama and Mississippi troops was due to measles and respiratory troubles. Measles patients in whom hookworm was found, seemed more liable to complications, lobar and broncho pneumonia, bronchitis, and otitis media, than others in the approximate ratio of 2 to 1. Measles occurred much more frequently in men affected with hookworm; ratio about $2\frac{1}{2}$ to 1.

The influence of hookworm infection on incidence of measles may possibly be an indirect one. Such men are subnormal men, easily tired out and much more apt to lie up in overheated and tightly closed tents where infection from incipient cases of measles was acquired.

It must be stated also that the Alabama Cavalry were of much younger age on an average and that they drilled more incessantly, in a more arduous form of exercise. A report of Maj. Siler in detail of this survey has been forwarded for publication.

The patients found to harbor hookworm were properly treated for the disease before leaving camp for their home stations. That all troops from hookworm-infested sections of the United States should be surveyed at mobilization camps and cured is the emphatic lesson of this survey.

Venereal.—Taking syphilis, chancroids, and gonorrhea together, the Regulars had 5,737 admissions or 140 per 1,000, and the militia 3,394 or 44 per 1,000. The great difference in these figures in favor of the State troops is due to a greater moral restraint of the militia, limited access to prostitutes by reason of large size of their camps and in part to failure of medical officers to detect and record many cases as required by orders. The opposite conditions usually existed among the Regulars.

Alcoholism.—The Regulars had 289 cases, ratio 6.87 per 1,000, which is less by half than for the Army in 1915. The militia recorded only 108 cases, with a ratio of 1.40 per 1,000. This difference is largely caused by circumstances similar to those mentioned under venereal diseases.

CAMP SANITATION.

Inspection.—During the militia mobilization, seven general sanitary inspectors were authorized by the War Department for the Southern Department and instructed to report the results of their inspections and recommendations to The Adjutant General through department headquarters. Each of these officers covered one or more districts, and they were most helpful in securing action to put the large camps for militia troops in a satisfactory state of comfort as rapidly as conditions allowed. Several of these officers also acted as district inspectors, rendering weekly reports to department headquarters.

In other cases, the district surgeon was also sanitary inspector of the district, or, when the number of troops and separate camps required it, a district sanitary inspector was appointed with no other duty.

Every large militia camp had also one or more camp sanitary inspectors of the regular Medical Corps, whose entire time was given to the work of inspecting and instructing the untrained troops in the care of their camps and personal hygiene.

The excellent service of the camp sanitary inspectors can not be adequately judged from their brief official reports. As friendly advisers of the militia medical officers, their services were invaluable and for the most part thoroughly appreciated.

By circular, Department Surgeon's Office, issued July 11, 1916, camp sanitary inspectors were directed to render weekly reports under certain specified headings through the general sanitary inspector of the district, as follows:

HEADQUARTERS SOUTHERN DEPARTMENT,
OFFICE OF DEPARTMENT SURGEON,
Fort Sam Houston, Tex., July 11, 1916.

Circular to each camp sanitary inspector in the Southern Department.

1. You will report immediately on receipt of this circular, and thereafter weekly on Saturdays, the sanitary condition of your camp, sending report to this office through the general sanitary inspector of your district.

2. This report will cover the following subjects and should be as concise as practicable.

I.

General condition of—

- (a) Camp site.
- (b) Water supply.
- (c) Latrines and their care.
- (d) Food and its preparation.
- (e) Disposal of kitchen and corral waste.

II.

- (a) Rate per 1,000 on sick report on day preceding report.
- (b) Prevailing diseases, if any.

III.

- (a) Rate per 1,000 on sick report from venereal disease on day preceding report.
- (b) Is venereal prophylaxis being carried out?

IV.

- (a) Any special insanitary condition.
- (b) Steps taken to remedy same.

V.

- (a) Progress of vaccination against typhoid and smallpox.
- (b) A special report will be made to this office when both procedures are completed.

VI.

- (a) Completeness and adequacy of sanitary supplies.
- (b) Are requisitions being submitted to remedy deficiencies?

VII.

Remarks.

When defects or delinquencies in camp sanitary conditions were reported, remedial action was, whenever possible, taken at once, and when construction was delayed or material obtained only with difficulty, all humanly possible efforts were made to expedite the completion of the camps and to supply the troops. The recommendations of the medical department have almost universally been approved and carried out by commanding officers and quartermasters. It is a pleasure to acknowledge the hearty spirit of cooperation which prevailed between the line and staff corps in the Southern Department whenever the welfare of the troops was involved.

The medical officers of the militia were, as a rule, men of high grade, professionally, and were well acquainted with the principles of military hygiene. Camp sanitation, however, requires more than expert knowledge on the part of a few trained men. All line officers and enlisted men must be taught the necessity for almost meticulous care in carrying out many rules which appear to them more or less unimportant, or else the model camp becomes an impossibility.

The human factor is all-important; the officer must direct and enforce obedience; the soldier's obedience must become habit, and when this state of discipline is attained, camp sanitation is easy for all.

Much variation in this personal element was observed in the case of the camps of militia organizations, but even the most inexperienced troops showed great improvement in maintaining sanitary camps. Some of the militia regiments went home for muster out with a record of no deaths from disease and no case of preventable infectious disease. To bring back, with this record, a regiment of robust, healthy men in better physical condition than when it left home should indeed be a source of just pride to its line and medical officers.

The experience gained in the mobilization of the militia has in every way confirmed the belief of medical officers in the almost mathematical correspondence of efficiently carried out sanitation with general efficiency of troops for the use of the Nation. The sick report is an excellent index of the value of the organization. Eliminating casualties due to service, unavoidable exposure to climate, and fatigue, and to certain common infections of civil life, against which we are as yet almost helpless, the best regiments and even the best companies in a regiment will in the long run, show the lowest sick rate. Good luck in escaping sickness is far less a factor than intelligence and fidelity in the care of person and environment, and when these qualities are present and exercised along sanitary lines, it is axiomatic that they will also act in other directions.

Confidence has also been strengthened in our recognized sanitary procedures, which have, on the whole, stood the test of service on a large scale. It is highly desirable that all structures, appliances, and furniture used for sanitary service in permanent camps or in the fields with the mobile army should be standardized and made a matter of regulation; but here again, it is not so much a matter of the instrument, as the way in which it is used.

A sanitary order (General Orders, No. 13, Headquarters Southern Department, July 10, 1916) was issued very soon after the militia troops began to arrive in number. This order covers in simple language all the necessary sanitary procedure, and fixes the duties and responsibility of line and staff officers in carrying out its requirements.

GENERAL ORDERS, }
No. 13.

HEADQUARTERS SOUTHERN DEPARTMENT,
Fort Sam Houston, Tex., July 10, 1916.

The following sanitary regulations will be strictly complied with at all camps within the limits of the Southern Department:

1. The maintenance of sound health is necessary to the welfare of the individual and of military efficiency. All members of this command are enjoined to carry out the requirements of this order in letter and spirit. Any infractions thereof will uniformly be made a subject of disciplinary action.

All work needful to proper sanitary conditions of this command will be carried out without delay.

Responsibility for sanitation.—Battalion commanders are responsible for the police and sanitation within their battalions. They will see that their respective battalion areas are ready for sanitary inspection by 9 a. m. daily, and will personally inspect all parts of such areas twice daily in company with a medical officer of the regiment. They will take such measures as are necessary to insure effective sanitation within companies.

The adjutant, quartermaster, and company commanders are similarly responsible for the enforcement of this order within the headquarters company, supply company, and machine gun company.

Sanitary function of the surgeon.—The surgeon of a regiment is its sanitary officer. He will inspect the entire regimental area at least once daily, subsequent to 9 a. m.

He will give special attention to the maintenance of thorough camp police, the prompt and effective disposal of refuse, the destruction of flies, and the proper sanitary condition of the latrines and bathhouses. He will report at once in writing to the proper battalion commander any defects noted, with proper recommendation as to their remedy. If on his next inspection any sanitary defect previously reported upon by him is found still to exist, he will at once report the facts in writing to the camp commander.

Camp police.—Proper neatness and police of camp sites at all times is required.

The throwing on the ground of trash, remnants of food, or other refuse is prohibited. Dirty water will be disposed of only in the places and manner provided for the same.

Destruction of flies.—Flies are great nuisances in camp and spread disease. Every effort will be made to keep down their numbers and prevent their development.

Any area on which flies are seen to cluster will be burned over at once, thereby destroying their food and eggs. Fly paper will be hung from the ridges of the kitchen tents, and requisition for the same should be made on the camp quartermaster. Each company will at once make requisition on the camp quartermaster for three flytraps and maintain same in operation.

Articles which attract flies will not be allowed to remain exposed.

Drainage.—Tentage and company streets will be ditched so as to effectively carry off all storm water. The vicinity of bathhouses will be so ditched and drained as to permit of no accumulation of bath water.

Sunning of bedding and tent areas.—Bedding and equipment will be exposed to the sun and wind for at least two hours each fine day. All tentage will be struck or furled for this purpose at least twice a week.

Water supply.—The water supply for every camp should be wholesome for drinking purposes without purification.

Troops leaving camp for maneuvers or marches will fill canteens before leaving.

To avoid insanitary puddles about the standpipe, no water will be wasted from the kitchen faucets.

All proper economy in the use of water in bathing is enjoined, as the disposal of waste water from bathhouses is very difficult in this soil. Officers will see that as soon as the men have finished bathing, the flow of the water from the showers is cut off.

Personal cleanliness.—Every member of this command will bathe at least twice weekly.

Army Regulations require that each man will wash his hands before each meal and immediately after visiting the latrine.

All clothing will be maintained in a cleanly condition. It may be washed in the bath houses or sent out for laundering.

Foods and messing.—All fresh meat, bread, and vegetables will be inspected by a medical officer, as to quality, when issued.

Food will be prepared and served in a cleanly manner. It will habitually be protected against sun, dust, and flies. Company cooks and mess equipment and kitchen areas will be neat and clean at all times.

Individual mess kits will be cleaned at the cook tent immediately after use. Cooks will maintain a supply of hot water for this purpose.

The keeping in the tents of uneaten portions of rations is strictly prohibited.

All members of this command are warned against patronizing places off the reservation in which food, ice cream, or drinks are sold which are not free from flies and not maintained in a cleanly condition.

No hucksters will be permitted in camp other than for delivery of supplies in general messes.

The bringing of melons into camp, from the great difficulty of disposing of melon rinds, is prohibited.

Disposal of refuse.—Each company will construct and maintain a company incinerator of the type approved by the camp sanitary inspector. All garbage and camp refuse, other than manure and trash from the picket lines, will be promptly destroyed therein. No accumulation of refuse will be permitted.

Greasy water from the kitchens will be evaporated in the incinerators. To this end, all proper economy in the use of water in kitchens will be enforced.

Footwear.—Great care will be taken in fitting the men with shoes. The tip of the toes should not be less than one-half an inch from the tip of the shoes when the full body weight is thrown on the foot being fitted.

A sufficient supply of socks, free from holes, will be maintained by each man.

Soil pollution.—Pollution of the camp area by urination or defecation is strictly prohibited.

Any person offending in this respect will be brought to trial without delay.

Picket lines will be kept policed, and manure and trash piled for removal and disposal.

Latrines.—Latrine pits will be kept fly-proof. Lids will be kept closed when seats are not in use. Seats will be scrubbed off once daily. Urine troughs will be flushed out and swabbed with crude oil once daily. Covers will be lifted off pits and the latter burned out with hay and crude oil once daily.

Each latrine will be inspected by an enlisted man of the Medical Department every two hours between reveille and retreat.

Night urinals.—A urine tub will be placed in each company street at retreat. The ground on which it is placed will be kept marked with lime and the site designated by a lantern at night.

Urine tubs will be removed at reveille, emptied into the latrine, burned out with hay and crude oil, and sunned during the day.

Avoidance of disease infections.—In view of the liability of acquiring infectious disease, the troops of this command are warned to remain away from uncleanly habitations and persons when off the reservation.

Venereal disease.—Persons consorting with loose women are in great danger of acquiring venereal disease.

Those who have been exposed to venereal infection are required by War Department orders to use the approved measures for cleanliness and prevention of venereal disease. Those who fail to do this and develop venereal disease will be court-martialed for disobedience of orders.

Facilities for giving and recording prophylactic treatment are maintained at the regimental infirmary.

Physical examination.—The semimonthly physical inspections of the men, required by War Department orders, will be completed before the 15th of each month and again before the 30th day of each month.

A company officer will be present when such examination is made by the medical officer.

Use of regimental infirmary.—Minor cases only will be treated in the regimental infirmary. All others will be transferred to the base hospital.

Any man who has a fever of 101° will be so transferred without delay.

Prophylactic inoculations.—Inoculations against typhoid fever and vaccination against smallpox will be prosecuted systematically under the prescribed methods until the command is thoroughly protected against these diseases.

Publication of this order.—This order will be read twice to each organization at retreat, and a copy will be kept posted on the bulletin board of each company.

Water supply.—Water supply of camps has, generally speaking, been ample and excellent in quality. At the large camps, natural water beyond suspicion was furnished and the use of the Darnall filter, the Lyster bag, or boiled the water used for drinking has prevented water-borne diseases in the smaller camps and on the march.

The camp of the New York division at McAllen suffered from delay in piping water to camp in sufficient quantity for shower baths and laundry work, but the artesian water used was of good quality for drinking and cooking.

Torrential rains and unavoidable delay in delivering construction material delayed the proper sanitary preparation of the camp at McAllen in this and other ways.

During August and September an outbreak of acute diarrhea at Douglas, Ariz., was at first attributed to the water supply. The water was found to be pure from the laboratory standpoint, but impregnated with mineral salts of a purgative nature. The outbreak, which soon subsided, is to be attributed, in my opinion, to camp cookery, indiscretions in diet, and the laxative nature of the water.

The food of the troops has been uniformly plentiful and good in quality. Its preparation and service has been from fair to excellent, according to the capacity and efficiency of cooks and mess management. It is most difficult to build up an efficient kitchen department in a company of newly raised troops. Capable camp cooks, who can use the ration to advantage and furnish appetizing food under all conditions in camp and on the march, are treasures not easily found, and it takes time and experience to form a green man into a military cook. On the whole, the preparation of the food was much better than might have been expected, and in many organizations was excellent.

A crying need developed for a standard type of easily portable ice box intended for use in camps. Makeshifts and locally constructed boxes were found very unsatisfactory and by no means economical. Recommendations for a standard camp ice box have been forwarded to the War Department, approved throughout at department headquarters.

Care of kitchen and mess.—The care of the company kitchen and mess calls for more continuous inspection and action on the part of officers and men than any other

sanitary routine in camp. The kitchens and mess shelters have been screened against insects. The great pest of flies, which is universal throughout Texas, has been combated with traps and poison. The kitchen wastes and the scraps from the mess table have been disposed of satisfactorily in company incinerators whenever the men were held strictly accountable for misuse of the structure. A few men, by carelessly throwing the contents of mess tins on the sides of the incinerator instead of in the fire, may create a nuisance and seriously hamper the fight against flies, notwithstanding conscientious efforts on the part of others.

There have been some variations in the structure of incinerators, but no new principles of importance have been evolved.

Stable refuse.—Stable litter and manure has been burned with the aid of oil satisfactorily on a small scale, but on a large scale this is difficult and very costly.

At the great remount depot near Fort Sam Houston the complete destruction of manure and the complete prevention of fly breeding is a herculean task. The neighboring farmers will not take the manure as a gift, and thousands of dollars worth of valuable fertilizer must be destroyed at considerable expense for its destruction.

Latrines.—Latrine pits covered with Havard boxes and burned out daily with crude oil and straw were in general use. The method of spraying these pits with lampblack and coal oil was widely experimented with and received universal approval. It possesses many advantages over the method of daily burning out. It takes less time, is not more costly, and is more efficacious in preventing fly breeding. Absolutely fly-proof pits and boxes are almost impossible to construct and maintain. Either from the nature of the ground, the edges of the pits become irregular, or the wooden boxes warp and crack from exposure. The use of the lampblack mixture deters the entrance of flies even in latrines that are not fly proof, and the method is now in wide use. To diminish the solid content of the pits, a burning out is advisable at long intervals in order to maintain for a longer time the usefulness of the latrine, but I have no hesitation in recommending the daily spraying instead of the daily burning out as a routine measure.

Shelter.—The troops have been well sheltered in tents, floored and framed, at all large camps. Sheltered latrines, shower baths, kitchen, and mess rooms were also provided. Kitchens and mess shelters were screened. The building and screening were accomplished with as little delay as difficulty of purchase and delivering of material permitted.

Ventilation of tents.—As the cold weather came on, the great importance of tent ventilation became apparent. This is a question which has been rather briefly treated in the textbooks on military hygiene. Reports from Camp Wilson and the mountain region in the western districts of the department have called attention to its very great importance. The incidence of respiratory disease and the occurrence of pneumonia, as well as the spread of measles and mumps, have been shown to be quite accurately proportionate to the bad ventilation of tents during cold weather. The tendency of soldiers to huddle together around red-hot tent stoves, closing every inlet for fresh air and every outlet for foul, has proved most difficult to overcome. With the framed tents, ventilation from below by fastening a piece of wood (2 by 4) to the outer surface of the wooden wall of the tent on three sides so as to hold the canvas away from the wall at that point, has proved very satisfactory. The tent door provides ventilation on the fourth side. The wooden walls should be made impervious to fine currents of air so that sleeping men may not be chilled, and the apex of the tent should never be closed entirely by the metal caps furnished. It is quite practicable to modify and so to use these caps as not seriously to interfere with the egress of foul air and at the same time to protect against rain.

Clothing.—Little complaint of the quality and adequacy of clothing has been made. There was a shortage of certain sizes in articles of clothing and some delay in supply. Some lots of commercial shoes purchased in open market and sent to the department were clumsy and unsuitable for marching troops. In every case coming to my notice these defects and shortage in clothes were corrected with the least possible delay.

A general inspection of the feet of the troops in El Paso district was undertaken by direction of the general commanding the district and excellently carried out by Maj. Reno, Medical Corps. Defects were listed and made of record and shoes properly fitted. Such a procedure should be among the very first carried out at training and mobilization camps before troops are used for field service.

Lavatory and laundry facilities.—Lavatory facilities in the field are even more important than in garrison, but are often sadly insufficient. Personal cleanliness of the body lies at the root of camp hygiene, and in this climate in summer a daily body bath is a necessity. At all the permanent camps shower baths were furnished in abundance, and as cold weather came on provision was also made for supplying hot water after more or less vexatious delay in the delivery of material had occurred.

The question of laundry work for troops in the field is one that, in my opinion, must be solved by the institution of transportable field laundries combined with steam disinfection for woolen clothes where necessary. The incidence of typhus fever among our troops was and is an ever-impending menace on the Mexican border, as the disease is widely prevalent on the Mexican side. A good and economical scheme for doing regular laundry work for large bodies of troops in the field remains to be evolved and is greatly to be desired.

Where typhus fever is to be feared—and if war with Mexico had actually taken place, this disease would undoubtedly have been a serious problem for the sanitary force to cope with—a method whereby large bodies of troops may be bathed, freed from vermin, and all clothing, cotton and woolen, properly disinfected must be devised and necessary material kept at hand for prompt installment. A good deal of thought has been given to the subject, but as yet an exact formulation of what method is most practicable, efficient, and economical has not been made. Fortunately, the need did not arise for the use of a plant among our troops. At all the principal international crossings on the border where our troops were most concentrated and where danger of typhus was greatest, such delousing and sterilizing plants were constructed and maintained by the Public Health Service, and it was not necessary for the Army to duplicate the work. Had the troops been called upon to enter Mexico in force, a portable plant to be carried on a train or motor truck for removing vermin from body and clothing would have become a necessity.

At Columbus, N. Mex., the base of the expeditionary column which was in Mexico for over 10 months, it was necessary to free from vermin many Mexican laborers employed upon the roads forming the line of communications. Altogether between 600 and 700 were treated. An inexpensive plant in which an individual and his clothing could be effectively handled in 20 minutes was installed and managed by Maj. L. L. Hopwood, Medical Corps, the district sanitary inspector.

INSTRUCTION OF SANITARY TROOPS.

By Memorandum of Instruction for Medical Officers and Sanitary Units, published at headquarters Southern Department August 12, 1916, a systematic scheme of training was outlined, which was carried out faithfully as far as circumstances at the different camps permitted. District sanitary inspectors were in charge of this training, which contemplated not only the instruction of junior officers and enlisted men by regimental surgeons and commanding officers of ambulance and field-hospital companies, but also conferences, lectures, map problems, and war games.

HEADQUARTERS SOUTHERN DEPARTMENT,
Fort Sam Houston, Tex., August 12, 1916.

Memorandum of instruction for medical officers and sanitary units.

SECTION I.—GENERAL.

1. The present mobilization affords a unique opportunity for the training of medical officers and enlisted sanitary personnel, especially of the Organized Militia and Medical Reserve Corps, in the functions of the Medical Department on field service.

Full advantage will be taken of this opportunity, and the following scheme of instruction will be carried out progressively and systematically.

2. *Participants in course of training.*—This course of instruction is compulsory for all medical officers of the Organized Militia and for all officers of the Medical Reserve Corps on duty with regiments and sanitary units.

3. Commanding officers of base, camp, and cantonment hospitals will see that officers of the Medical Reserve Corps on duty with their formations take such part of this course of training as will not interfere with the effective performance of their professional duties.

4. Junior medical officers of the Regular Army will take such part of this instruction in addition to that required by Section III as relates to subjects in which, in the opinion of their immediate seniors, their knowledge is deficient.

5. Enlisted sanitary personnel of the Organized Militia on duty with regiments and sanitary units will take the course of instruction here prescribed.

The enlisted personnel of the Regular Army will take the course of instruction prescribed in Section III and such other parts as district or division commanders may direct.

6. *Direction of medicomilitary instruction.*—District or division commanders will assign the officers necessary to serve as instructors and designate their duties. They

will require attendance on the course by officers and enlisted men as prescribed herein. They will provide for suitable field exercises, marches, and the solution of medicomilitary problems by sanitary units and detachments, and will determine the places, dates, and hours for drills, exercises, conferences, and field problems called for by this order.

7. *Supervision of medicomilitary instruction.*—The district or division sanitary inspector will, under the district or division commander, be responsible for the effective carrying out of the training prescribed in this order.

He will arrange all details, furnish his commander with the names of officers desired as instructors, make plans for all field work, and provide the necessary problems for solution.

In making his inspections he will give careful attention to the manner in which the provisions of this order are carried out, and will report to this office, through his commander, regarding the results attained.

8. If troops are organized into divisions, sanitary inspectors of divisions will take over the function of training officers as assigned to district sanitary inspectors in this order.

9. *Instructors.*—Senior or specially qualified medical officers of the Regular Army, selected officers of other branches of the service, and selected medical officers of the Organized Militia will act as special instructors in the course of training.

10. *Responsibility for training.*—The senior medical officer with each regiment and the commanding officer of each ambulance company and field hospital is directly responsible for the training of his junior officers and enlisted sanitary personnel under him.

SECTION II.—GENERAL TRAINING OF MEDICAL OFFICERS.

11. *Outline for instruction for officers.*—The medicomilitary training of medical officers will include:

(a) Practical work in drilling and instructing the enlisted sanitary personnel in its various duties.

(b) A course of systematized reading and recitations in publications regulating the medical service.

(c) Practical training in the preparation of papers and records.

(d) Practical training in applied personal hygiene and camp sanitation.

(e) Evening conferences, including lectures, discussions, map problems, and war games.

(f) Practical training in medicomilitary field work and sanitary tactics.

(g) Familiarization with ambulance companies and field hospitals.

(h) Familiarization with camp and base hospitals.

(i) Familiarization with hospital trains.

(j) Equestrianism.

(k) Marching.

12. *Drill and instruction in first aid.*—To familiarize medical officers with marching, litter, ambulance, and tent-pitching drills, and with first aid drills, every such exercise by enlisted men will be personally directed by one or more medical officers.

13. *Instruction in regulations, manuals, etc.*—The senior medical officer with each regiment, ambulance company, and field-hospital company of the Organized Militia will take measures to insure that all medical officers with his detachment or company are thoroughly informed, as soon as possible, with the provisions of Army Regulations; general orders and circulars, in so far as they relate to the sanitary service; Field Service Regulations; Manual for the Medical Department, 1916; Manual for Courts-Martial; Drill Regulations; and Service Manual for Sanitary Troops, 1914. Map reading and the use of the compass will be practiced until all officers can read maps, orient themselves, and take advantage of terrain.

To this end he will prescribe a systematic course of reading, may designate regular hours for this purpose, and will check up progress by oral quizzes at least once weekly.

When he and his officers are properly qualified in this respect, the senior officer will report the fact in writing to the district sanitary inspector, who will verify their knowledge in the course of his inspections.

14. *Instruction in papers and records.*—This is covered for officers in paragraph 35 of this memorandum.

15. *Training in sanitary inspection.*—For the purpose of instruction in the nature, scope, and methods of sanitary inspection of camps, the district sanitary inspector will detail at least two medical officers of the Organized Militia or Medical Reserve Corps, by roster, to accompany him on his daily sanitary rounds as assistants.

These officers under instruction will be expected to detect and record any sanitary defects and recommend appropriate remedy in each case. The district sanitary inspector will note and mention at the time any omissions or fault and will correct or

complete any recommendations of remedy. To this end he will question his assistants freely to make sure that defects and their methods of correction are fully understood. The written sanitary report for each camp will be prepared for the signature of the district sanitary inspector by his assistants.

16. *Familiarization with field-hospital and ambulance companies.*—Medical officers on duty with regiments of the Organized Militia will be attached, by roster, by the district commander on recommendation of the district sanitary inspector, to field-hospital and ambulance companies for the purpose of familiarizing them with the organization, functions, and administration of these sanitary units. The period of such attachment will ordinarily be not less than five nor more than seven days. While so attached medical officers under instruction will be directly under the orders of the commanding officer of the sanitary unit to which they are assigned and will perform such duties as the latter may direct. Ordinarily not more than three medical officers under instruction will be attached to a sanitary unit at any one time.

17. *Familiarization with camp and base hospitals.*—Commanding officers of camp and base hospitals will arrange with district sanitary inspectors for inspection of their hospitals by medical officers at convenient dates, and will see that the latter have proper opportunity to inform themselves as to the organization, equipment, and administrative methods of these institutions.

18. *Familiarization with hospital trains.*—Every medical officer will, at the earliest practicable opportunity, visit a hospital train and thoroughly familiarize himself with its equipment and methods.

As far as possible medical officers will visit the hospital train in groups to facilitate the work of description and explanation by the personnel of the latter.

19. *Equitation.*—Every medical officer not versed in horsemanship will be required to ride not less than one and one-half hours daily until properly qualified. When practicable, such medical officers will ride in groups under direction of a competent instructor.

Senior medical officers with regiments and sanitary units will take measures to see that this requirement is strictly carried out.

20. *Marches.*—For practice in marching as many officers as practicable will accompany their sanitary detachments or units on the marches required of the latter. In this connection, they will give special attention to the fitting of shoes and the care of the feet.

CONFERENCES.

21. *General scheme.*—There will be not less than two evening conferences for all medical officers weekly. Each conference should include three parts, as follows:

(a) A lecture by medical or other officers on a prescribed subject, to last 45 minutes.
(b) A period for the general asking of questions and discussion of doubtful points, to last 15 minutes.

(c) The solution of one or more map problems or the playing of a war game on a large-scale map, illustrating various phases of general and sanitary tactics.

22. *Lectures.*—The following lectures, of 45 minutes duration each, will be given at conferences by selected medical officers:

- (1) The organization and function of the Medical Department for war.
- (2) The status of medical officers and the relation of the Medical Department to the rest of the Army.
- (3) The sanitary administration of camps.
- (4) Field Service Regulations, in so far as they relate to the Medical Department
- (5) The Manual for the Medical Department, 1916, in its relation to field service.
- (6) Customs of the service.
- (7) The mechanism and methods of evacuating the disabled in war.
- (8) The nature, purposes, and functions of the formations of the Medical Department for the relief of the disabled in war.
- (9) The methods of the Medical Department in securing its equipment and supplies and in replenishing the same in the field.
- (10) The organization, function, and management of base and general hospitals.
- (11) The organization, function, and methods of the American Red Cross for war.
- (12) Such other lectures on military and medicomilitary subjects as may be desirable will be given as opportunity presents.

23. *Discussions.*—These will be had on any subject of practical general importance on which information or inquiry is desired by persons in attendance at the conference.

This period of general discussion will ordinarily be limited to not exceeding 20 minutes, in order that the general scheme of instruction at conferences may not be unduly interfered with.

24. *Map problems and war games.*—At least one map problem or a war game, illustrating various phases of general and sanitary tactics, will be played at each conference by designated officers.

Maps of Fort Leavenworth and vicinity or Gettysburg, of 3-inch (or larger) scale to the mile, with the necessary markers, will be used. The necessary material for this purpose will be provided by district commanders. The latter may also assign line officers to assist the district sanitary inspectors in the preparation of these problems and the management of war games.

Map problems and war games will be progressive from the battalion through the reinforced brigades and including the division and will be arranged so as to emphasize the use of sanitary detachments and sanitary units as much as possible.

25. *Attendance at conferences.*—This is compulsory for all medical officers of the Organized Militia, officers of the Medical Reserve Corps, and officers of the Medical Corps of less than 10 years' service, unless specifically excused by their superiors by reason of duty.

Officers of other branches of the service are invited to be present at conferences and take advantage of and participate in the proceedings.

SECTION III.—PRACTICAL FIELD EXERCISES.

26. The field exercises prescribed under this section are required alike of medical officers and enlisted sanitary personnel on duty with regiments and sanitary units of the Regular Army and Organized Militia.

As far as practicable Medical Reserve Corps officers and officers of the Medical Department of the Army of all grades will be in attendance.

27. *Field problems.*—There will be a number of sanitary field problems carried out by the sanitary personnel appropriate in general nature to the sanitary detachments or units whose functions are to be demonstrated. These problems should be progressively increased in magnitude and number of units concerned. They should include dispositions on the march, in positions in readiness, in the attack, in the defense, and in the encounter.

A sufficient number of printed copies of the situations to be solved will be distributed, so that proper information of the objects to be attained may be had.

28. *Conjoint problems.*—When regiments solve problems the sanitary detachment of each will play its proper part in relation to the combatant troops to which it belongs.

District commanders will require that in large problems ambulance companies and field hospitals shall participate.

These conjoint problems will be solved in two stages:

The first stage, in which the tactical situation is the dominating factor and in which the activities of the troops are accompanied or followed by the appropriate sanitary dispositions.

The second stage, in which the tactical situation has been solved and the arrangements for the disposition of the wounded become the predominant factor.

Commanding officers of the combatant troops engaged will make such disposition of these troops as will enable the sanitary units to carry out the second stage of these exercises.

29. *Night problems.*—In modern war most of the work of first aid and evacuation of the wounded can only be done under cover of darkness. A sanitary problem will therefore be solved at night, in the dark of the moon, at least once a month. This problem will be of sufficient magnitude to require the use of at least one ambulance company and field hospital company.

An appropriate number of soldiers, without arms, should be designated and tagged as wounded and distributed over a mapped terrain under conditions approximating those of war.

The problem should include the making of contact by the sanitary units with the wounded, the transmission of orders, the searching out of wounded, appropriate first aid, and the actual transportation of the wounded to dressing stations, and thence to the field hospitals.

30. *Attendance as observers.*—When practicable medical officers and enlisted sanitary personnel not engaged in other urgent duties will be in attendance on field exercises as observers.

Measures will be taken to inform them of the nature, purposes, and phases of the field exercises, so that they may gain the greatest benefit from their observation.

SECTION IV.—TRAINING OF ENLISTED SANITARY PERSONNEL.

31. Enlisted sanitary personnel will be given not less than five hours' instruction daily. On Saturdays, beside the required formal inspection, two hours' instruction will be given. Sunday will be observed as a day of rest.

This instruction will be imparted:

(a) By reading and recitations in the Soldier's Handbook, Army Regulations, Manual for the Medical Department, Drill Regulations and Service Manual for Sanitary Troops, and Mason's Handbook for the Hospital Corps.

(b) By drills and demonstrations.

(c) By participation in practice marches and maneuvers.

32. *Subjects for instruction.*—Instruction under class (a) will include: (1) Discipline; (2) duties of the soldier; (3) bearer and ambulance drill; (4) first aid, including bandaging, splinting, and the treatment of common emergencies; (5) personal hygiene and the elements of camp sanitation; (6) anatomy and physiology; (7) nursing; (8) organization and operation of the sanitary service in the field.

Men qualified in one or more subjects, on being so certified by the senior medical officer in writing, may be excused from further instruction in those subjects. (b) The training by drills and demonstrations will include foot and litter drill; use of first-aid packet; use of individual equipment of the Hospital Corps soldier; treatment of wounds and fractures; treatment of common emergencies; transportation of the disabled; pitching and striking tentage; packing and unpacking equipment and the use of the articles thereof; the care of property; driving; equitation and the care of animals; harness and vehicles. (c) Instruction by practice marches and maneuvers. This subject is covered by Section III of this order.

INSTRUCTION IN OTHER SUBJECTS.

33. *Setting-up exercise.*—Sanitary personnel will be given at least 10 minutes setting-up exercise daily.

34. *Practice marches.*—Sanitary personnel of regiments and ambulance companies and field hospital companies will make a practice march of not less than four days' duration and not less than 40 miles in length at least once a month. During this practice march, daily sanitary maneuvers will be held.

35. *Instruction in paper work.*—For the purpose of insuring the proper preparation and maintenance of the required papers and records, a properly qualified noncommissioned officer of the Medical Department will give each sanitary detachment and organization of the Organized Militia one day of instruction monthly. All noncommissioned officers and such privates as may be designated will report for this instruction. So far as practicable, medical officers will be in attendance at the time of such instruction and secure its benefits.

36. *Practical instruction in hospital work.*—Commanding officers of base, camp, and cantonment hospitals will arrange for the attachment to their hospitals, as supernumeraries, for practical instruction in the care of the disabled, of enlisted men of the sanitary service not experienced in this respect, from troops in their vicinity. Such numbers should be so attached from time to time as can be given instruction without detriment to hospital purposes.

The surgeons of regiments and the commanding officers of field hospital companies and ambulance companies will submit lists to district commanders, showing the names and rank of enlisted men of their commands who need to receive such practical training.

District commanders will authorize the attachment to hospitals, for the above purpose, of such number of enlisted men whose names appear on the above lists as the interests of the service may require.

The period of attachment to hospitals for purposes of instruction should not be less than two weeks. From the necessity of giving some degree of training to as large a number as possible in a brief period, it should not exceed three weeks.

Enlisted men attached to hospitals for the above purpose will ordinarily be quartered and subsisted therein, but will be mustered with their proper organization.

Commanding officers of hospitals will systematize the course of training for enlisted men attached thereto, to the end that they may receive as much instruction as possible in the care of the sick and the treatment of injury.

37. *Instruction with field hospitals and ambulance companies.*—The provisions for this subject covered in Section II, paragraph 16, will apply also to enlisted sanitary personnel. One noncommissioned officer and two selected privates from each regiment will be so attached to field hospital and ambulance companies. The necessary arrangements will be made for their subsistence and quarters with the sanitary unit to which they are attached.

38. *Instruction as cooks.*—For the purpose of instruction in preparing the ration, selected men will be assigned by roster as assistants to the cooks of their organizations for periods of not less than 7 nor more than 10 days.

39. *Instruction as chauffeurs.*—In ambulance companies and field hospital companies which are provided with motor ambulances or motor trucks, selected sober and reliable privates and privates first class, to the extent of 50 per cent of the enlisted strength of each such organization, will be given systematized instruction in the operation and care of motor cars.

SECTION V.—SANITARY INSTRUCTION OF COMBATANT TROOPS.

40. This will include (a) lectures and demonstrations to militia line officers; (b) lectures to militia enlisted men.

41. *Instruction of line officers.*—Not less than six lectures on camp hygiene and disease prevention under present and possible conditions, and two demonstrations and lectures on the use of the first-aid packet, will be given to all line officers within one month after receipt of this memorandum.

Lectures on hygiene and sanitation will include the disposal of excreta and refuse; camp police; the care and preparation of food; cleanliness of person, clothing, and bedding; the destruction of insect pests; the prevention of infectious diseases, including typhus fever.

Lectures and demonstrations on first aid will include wound infections, the use of the first-aid packet, bandaging, the improvisation of splints, the improvised transportation of wounded.

42. *Instruction of enlisted men.*—Not less than three lectures will be given all enlisted men, without delay, on personal hygiene, the elements of camp sanitation, and the prevention of the commoner camp diseases, including venereal diseases, alcoholism, typhus fever, etc.

The senior medical officer with each organization will provide for this instruction.

It was soon discovered that instruction was most imperatively needed in preparation of papers and record, so that the efforts of sanitary inspectors were chiefly directed to this end.

Practical experience in marching and maneuvers throughout the department was gained by nearly all the regiments.

An excellent series of map problems and maneuvers for sanitary troops was planned by Col. E. L. Munson, division surgeon, Twelfth Provisional Division, and carried out most successfully at Leon Springs, November 18 to 29, inclusive. The division commander took an active interest in the plan and furnished a battalion of Infantry and another of Signal Corps to cooperate in the work. A report on the maneuvers has been rendered by Col. Munson.

CONSTRUCTION OF HOSPITALS.

For the treatment of the sick of the large force in the Southern Department, it was found necessary to construct as rapidly as possible fixed camp hospitals, in which all classes of sick and injured could receive final treatment under conditions as favorable as those existing in modern civil hospitals throughout the country.

The two existing base hospitals at Fort Sam Houston, Tex., and Fort Bliss, Tex., of about 200 beds each, were enlarged by the addition of wooden pavilion wards and increased to the capacity of 750 and 900 patients, respectively.

Hospitals ranging in capacity from 100 to 500 beds were erected at Brownsville, Llano Grande, McAllen, Laredo, Eagle Pass, Fort Clark, Del Rio, and Marfa, all in Texas; at Deming, N. Mex., and at Douglas and Nogales, Ariz.

A cantonment hospital partly under canvas existed at Columbus, N. Mex., at the beginning of the mobilization.

A standard unit building was used, 100 feet long by 20 feet wide having ridge ventilation and 8-foot porches on all sides. The buildings were screened from insects, lighted by electricity, and supplied with running water. As winter came on, the buildings were weather-proofed against the cold and heating arrangements by stoves installed.

The equipment of the hospital was on hand before the buildings were ready to receive patients. It comprised all the standard furniture, instruments and supplies of regular post hospitals in the Army, including perfectly equipped operating rooms and X-ray machines. Female nurses were on duty at all but a few of the smallest hospitals.

SERVICE OF HOSPITALS.

Reports from all the base and camp hospitals accompany this report and give details of the service of each. It is a record of good work and excellent results of which the Army has no cause to be ashamed.

The surgery was uniformly efficient and all classes of major operations were performed

LABORATORIES.

The service of the three department laboratories is set forth at length in the accompanying reports from these institutions. The routine work is enormous, but much special research has been made, most of which has been the subject of special reports and is alluded to elsewhere in this communication.

It is believed that important addition to our knowledge of paratyphoid fever, pneumonia, cerebrospinal meningitis, and other infections has been gained.

Among the important points to be decided in raising the contemplated great Army of the United States, upon which the work of the laboratories in this department have thrown much light, are:

1. The necessity for compulsory vaccination against paratyphoid fever of all troops.
2. The necessity for special equipment and construction of laboratories at large "cold weather" camps for the differentiation of pneumonia microbes, so that special serum therapy may save the lives of many of the sick.
3. The detection and cure of hookworm at mobilization camps of all troops from infected sections of the United States.
4. The handling of carriers of disease, who are themselves physically able to do full duty.

SUPPLIES.

With the exception of field dental equipments, which were not purchasable in the United States on time, and some articles of combat equipment which were equally unobtainable, all classes of medical supplies were on hand and promptly furnished on requisition.

The medical supply depots at San Antonio, Tex., and El Paso, Tex., were excellently managed to the satisfaction of the authorities.

MEDICAL DEPARTMENT CLERKS.

Special mention is due to the faithful and efficient services of the clerical force in my office and especially to the chief clerk, Mr. John W. Cleave.

This force of classified clerks, Medical Department at large, temporary clerks engaged for the emergency caused by the mobilization of last summer, and of noncommissioned officers and privates of the Medical Department, has been most efficient in keeping abreast of the large mass of work handled by the office of the department surgeon, and in meeting emergencies.

The status of clerks of the Medical Department should, in all justice, be equalized with that of field clerks of The Adjutant General's Office and the Quartermaster Corps. Long and faithful service at home and abroad should meet at least with no less reward than has been given to the same class of service in other staff departments.

The Division Surgeon, Eleventh Provisional Division, reports as follows:

The Eleventh Provisional Division consists principally of the National Guard organizations from the States of Ohio and Michigan, with a few scattering organizations from other States. The only representatives of the Regular Army are a few staff officers at division headquarters and the inspector-instructors on duty with the different regiments. Although two regiments of Infantry from Michigan have been in the vicinity of El Paso since July, the division proper was not organized until about September 10. A large proportion of the personnel comprising the organizations are men possessing limited experience in camp life; in fact, it is safe to say the majority never experienced conditions of this kind before. After the call of the President the majority of the organizations were greatly depleted owing to the mustering out of many of the older members due to physical and other disqualifications. As a result the ranks were filled by untrained men. The general morale of the personnel comprising the division is very good, the majority of its officers and men being of high caliber.

The general criticism to be offered, however, is the inexperience and lack of interest displayed by many of the organization commanders relative to sanitary matters and conditions concerning the health of their men. Although rigid sanitary rules and regulations have been published, but few of the organization commanders have familiarized themselves with them and endeavored to carry out their provisions.

CAMP SITES.

This division occupies two separate and distinct camp sites, entirely different as to soil conditions and surroundings. The main body is camped on a rocky plateau about 3 miles north of the city of El Paso. The site is bounded on the west by the Franklin range of mountains, on the east by the Fort Bliss mesa. The soil is rocky, barren, and void of vegetation. The territory is laid out into city lots and its occupancy by the military was with the understanding that no latrines or pits would be dug except in the streets. As a result some of the camps are somewhat congested. In many places the camp is built on solid caliche or rock and the placing of tent pegs is almost impossible. All latrines and pits of any kind had to be blasted.

The camp site of the Michigan regiments is of a different nature, being located on a low sandy level between the Rio Grande and the irrigation ditch east of the city. While the main body of the division camp is established in a good residential section of the city, the Michigan camp is surrounded to a large extent by Mexican shacks and questionable houses.

WATER AND FOOD SUPPLY AND DISPOSAL OF WASTES.

The food supplied was satisfactory, both as to quantity and quality; a few complaints were made relative to some commodities, but on investigation proved to be groundless. The water was furnished by the El Paso Water Works and although the quality of the water was satisfactory, many complaints were made from time to time relative to the diminished supply. This was especially true of the provisional regiment of Field Artillery, which at times has been deprived of water entirely.

MEDICAL PERSONNEL OF THE DIVISION.

The commissioned personnel of this division consists of 14 majors, 26 captains, 39 first lieutenants, 8 dentists, and 3 veterinarians. The large majority of the medical officers in this division are highly educated and successful practitioners in their respective communities. They have appeared interested in the work and anxious to learn. They were greatly handicapped in their work due to lack of experience and training in military medical matters. The medical officers from Ohio were further handicapped by the poor instruction received from a noncommissioned officer of the Medical Department of the Army when at the State camp, who knew nothing about the work and who was not prepared to act in the capacity of an instructor. As a result of this they were compelled to undo much of the work done at their camp. This was especially true in making out sick and wounded cards and general records. As a result the first few weeks spent at this camp were very trying and many became discouraged, which was perfectly justifiable; but by constant work and perseverance on their part they have mastered many of the difficulties and at present the work is progressing satisfactorily.

There are 650 enlisted men in the Medical Department. Of this number one private died of pneumonia, one was transferred to a line organization and four were furloughed to the reserve. As a rule the enlisted personnel of the Medical Department consists of a high class of men, many of them being doctors, dentists, lawyers, medical students, etc. These men, like those of the line organizations, lacked instruction. This was especially noticeable of the majority of the noncommissioned officers. Special mention might be made of the rapid progress of the field hospitals and ambulance companies. Considering these organizations had never been trained as such and that prior to reaching El Paso the majority of their members had never received training with animals, too much can not be said of the rapid progress made in rounding out these organizations after their equipment was complete. A sergeant from one of the Regular Cavalry organizations stationed at Fort Bliss was assigned to each company for 15 days, after the animals had been furnished and the work performed by them was excellent.

ANIMAL AND WHEEL TRANSPORTATION.

The following animal and wheel transportation is assigned to the medical department of this division:

Riding horses.....	234	Wagons.....	44
Ambulances.....	49	Pack animals.....	30
Draft animals.....	390	Automobiles.....	1

REQUISITIONS.

Ninety requisitions were submitted by the medical officers of this division, as follows:

Field hospitals.....	21	Eighth Ohio Infantry.....	5
Ambulance companies.....	12	Engineers.....	4
Second Ohio Infantry.....	5	Cavalry.....	5
Third Ohio Infantry.....	5	Field Artillery.....	5
Fourth Ohio Infantry.....	7	Signal Corps.....	5
Fifth Ohio Infantry.....	5		
Sixth Ohio Infantry.....	11		90

As a rule all requisitions were honored expeditiously, and little complaint was heard from medical officers relative to this matter. There has been some difficulty in obtaining certain supplies, but in no case has the health of the command suffered or been impaired. It was impossible to obtain proper dental equipment during the first few weeks, but this condition was unavoidable, due to the fact that the dental supply houses could not furnish equipment. At the present time all dental surgeons have their equipment and are doing excellent work.

CLIMATIC CONDITIONS.

The climate might be considered mild, although some exceptionally cold periods have been experienced from time to time; fortunately, however, these cold spells were of short duration. As a rule the days are warm and the nights cold. During the first few weeks several severe rainstorms were experienced, but of late there has been little rainfall. Wind and sand storms are common, during which camp life is extremely disagreeable.

PREVAILING SICKNESS.

The prevailing sickness in the division appeared to be mostly of a trivial nature, such as slight colds and catarrhal diseases of the respiratory system.

VENEREAL DISEASES.

The venereal rate in the division was very low. This condition was believed due to the high standard of morale of the men and to the immediate establishment of prophylactic stations throughout the division. Immediately upon the arrival of organizations, organization commanders and the medical officers were assembled by the division surgeon and told of the venereal conditions in and around El Paso, and instructed to notify the men at the first formation of such conditions. The medical officers were directed to immediately establish prophylactic stations. Venereal inspections are made bimonthly, and report is made to the office of the division surgeon.

DEATHS.

There have been 24 deaths in the division—15 caused by pneumonia, 1 tuberculosis, 1 diabetes, 1 drowned, 1 anemic dysentery, 1 run over by vehicle, and 4 gunshot wounds (2 accidental, 1 suicidal, and 1 homicidal).

HEADQUARTERS, TWELFTH PROVISIONAL DIVISION, CAMP WILSON, TEX.

CAMP SANITATION.

This camp, situated to the northeast on the outskirts of the city of San Antonio, has the advantages of good natural drainage for surface water, good climatic conditions, accessibility for supplies, environs free from nuisances, and an excellent and ample water supply.

The soil of the camp site is mixed gravel and gumbo clay, which in wet weather makes a deep, sticky mud. During the summer of 1916 there was an unusually large amount of rain. The camp site was at times very hard to keep clean.

Surface water drainage has been facilitated by a system of ditching which serves not only to rid the camp of rain water but also to carry off waste water from the bath houses. This is of great importance, as during hot weather a great quantity of water is used for bathing and washing clothing.

There is no system of sewerage. It would be difficult to install a sewerage system for the camp, which would not be objectionable, without great expense. The sewers for the part of the city near the camp are already taxed to their full capacity and can not be used for camp drainage.

There is some question as to the desirability of having such a system for a military encampment. Its convenience is offset by the fact that troops sent to the encampment for training should learn how to do without conveniences which it will be impossible for them to have in active service. It is important as part of their training that they learn sanitary methods for care and disposal of wastes.

Police of camp environs has as a rule been very good. Early in the summer there were a number of small stores, restaurants, and fruit stands near the entrance of the camp which were not well kept. The health authorities of the city of San Antonio took the matter in hand. Scavengers removed refuse daily and inspectors from the health department were specially assigned to the district. The results have been good.

The San Antonio police department as well as the health department cooperated with the authorities of the camp. Objectionable characters were not allowed in its vicinity. Measures were taken for suppression of prostitution. Soliciting in the vicinity of the camp was prohibited. Plain-clothes men made frequent rounds to see that the prohibitions were enforced.

Climatic conditions.—During the summer the heat was at times great. It was seldom over 95°, usually not over 85° in the hottest part of the day. There was nearly a "Gulf breeze" in the afternoon. The heat was not great enough to interfere with the proper training of troops. During the months of June, July, and August drills were suspended during the hottest part of the day. None of the men suffered any hardship or injury on account of the climatic conditions. There were a few cases of heat prostration, none of a serious character. The number of heat prostrations was no greater than would occur in summer camps in northern States. The summer temperature of Illinois was hotter during the summer of 1916 than that of San Antonio.

During the months of November and December there were several northers, which caused sudden drops in temperature and considerable discomfort. There were 56 cases of bronchitis in the First Mississippi Infantry Regiment reported in one week following exposure in a norther while the regiment was en route from Leon Springs to Camp Wilson. None of these cases were of a serious nature. The rest of the command had no rise in sick rate due to this cause.

Taken throughout the year, the climatic conditions of Camp Wilson are admirably adapted to the requirements for a camp of instruction. There is no prolonged period during which the troops can not be given field exercises. With reasonable attention being paid to the climatic conditions, avoidance of strenuous exercises during the heat of the day in summer and suitable attention to heating of tents during the colder periods in the winter months, men of the command may be expected to maintain excellent health.

Food and its preparation.—The food supply for the command has been excellent. Articles furnished by the Quartermaster's Department have been of good quality. The quantity has been ample. There has been a sale to some of the organizations of meats that were not United States inspected and passed. This matter is now under consideration and suitable action will be taken.

An attempt was made to have these articles purchased through the Quartermaster's Department, but as they could be purchased only as "exceptional articles" and the method of purchase of articles of this class is too difficult, deliveries are too slow, and the regulations require that the articles so purchased must be accepted regardless of the condition of delivery, it was impracticable to buy meats in this way. The meats in question include veal, pork, and sausage. They have been purchased from local

dealers. Some of the meats so purchased are of good quality. There is, however, no guaranty of their fitness for consumption unless prepared under United States inspection.

The preparation of food by militia organizations has not been as good as by regular troops. This is due to lack of experience. It has been made a matter for instruction and in commands which have been a short time in camp great improvement has been noted. Preparation of food improves both as regards handling of the ration in making the meals better balanced, more appetizing, and also as regards economy in use of the ration. In new organizations there is enormous waste of food.

Milk supply.—In many of the kitchens none other than condensed milk is used. There is some fresh milk sold in the camp.

The condition of dairies was made a matter of investigation. There were no orders issued on the subject. Recommendation was made that fresh milk be purchased from certain sources which were known to be good.

The milk supply of San Antonio is under a good city inspection. Milk is continually inspected and dairies are scored and the scores published monthly in city newspapers.

Inspections were made of soda bottling plants and of the plants of firms which furnished ice cream to the camp exchanges. During the summer months immense quantities of ice cream were sold in the camp, as well as an immense amount of bottled soda. Information was given purchasing officers for post exchanges as to the firms which were preparing these articles under good conditions.

Kitchen incinerators.—During the first two months—July and August—incinerators of the horseshoe type, rock lined, were used. They were not satisfactory. It was nearly impossible to evaporate in them the waste water from the kitchens.

Incinerators of the horseshoe shape worked well at the camps at Leon Springs and New Braunfels, but were not a success at Camp Wilson. At the Leon Springs and New Braunfels camps the soil was rocky. There was not the clay which is found at Camp Wilson. Large stones, which retained heat and aided in evaporation of liquids, were easily obtained. At Camp Wilson it was difficult to find enough large stones to line the inside of the incinerators. Small stones did not hold the heat. The soil was nearly impervious. There was little seepage of liquid through it. The clay on the sides of the incinerators became mixed with liquid kitchen waste and was saturated for some distance from the fires. It was kept warm by the fire and became an ideal place for hatching and breeding flies. It was possible to dig maggots from the earth in the sides of nearly every such incinerator. The rock-lined incinerators work well in rocky or in sandy soil, but are not a success in a soil of gumbo clay.

Brick incinerators with evaporating pans were installed at each company kitchen in August. They were much easier to care for than were the old ones. There was less difficulty from flies after their installation.

Incinerators of this type are now in use. They can be used effectively for disposal of kitchen waste. They are extravagant in fuel consumption; with moderate cost could be covered over, closed in, and have garbage chambers made. The cost of such improvement would be many times saved in lessened fuel consumption. They are not good incinerators, but are better than those formerly used.

Fly destruction.—During the summer months there were quite a number of flies about the latrines and kitchens. Vigorous measures were taken to rid the camp of their presence. The sources were from breeding places outside and inside the camp.

At Remount Station No. 2, 1 mile distant from the camp, there were kept on an average from 4,000 to 6,000 horses and mules. This station was not well policed at first and there were flies by the millions. The prevailing winds were from the direction of the remount station. Flies drifted into the camp in swarms. There were also flies bred in the camp in the incinerators and on the ground about, when the rock-lined type of incinerators was used. There were some flies bred in the latrines, though not in great numbers.

It was difficult at first to teach the more inexperienced men the necessity for scrupulous cleanliness of the kitchens and surroundings. They learned it after a time. However, as scrupulous cleanliness means a great deal of work, there was always natural inertia to be overcome in order to maintain good sanitary camp conditions.

Latrines were burned out daily and during some periods twice daily. Hot fires were needed in order to destroy all fly eggs and maggots in the latrines. Several of the latrine buildings were burned down during the process.

There were over 600 flytraps in use throughout the camp. Kitchens were frequently inspected and attention given to seeing that the traps were used and kept properly baited. Thousands of sheets of fly paper were used. Fly-breeding areas were burned over with hay and crude oil. Fly poison was supplied and used in the kitchens.

At Remount Station No. 2 there was an antify campaign. A detachment of Medical Department enlisted men under charge of a medical officer was put at work. Civilian employees were put at work cleaning up the paddocks. There were 30 men employed at this work. Several thousand sheets of fly paper were placed about the buildings. Five hundred plates of bread soaked with fly poison were placed about the stables and kitchens. The poison, 4 per cent formalin with sweetened water and condensed milk, was very effective. Ten gallons of dead flies were gathered from a small area where they were thickest. Another effective method for fly destruction is a spray of carbolic or cresol solution used with a tree sprayer. It is used in the evenings when flies have settled on screens and walls inside of the buildings. By use of these methods at the remount station the number of flies was quickly much reduced. The number of flies at Camp Wilson was immediately reduced, as there were fewer blown into the camp.

Latrines and their care.—The latrines used for the camp were pits 14 feet long by 6 feet deep. They were covered by boxes of a modified Harvard type. Latrine houses were built about them. The latrines were burned out once daily with straw or hay and crude oil. In hot weather during the summer it was found necessary to burn them out twice daily. Each latrine house was provided with a urinal trough of galvanized iron. This trough was connected with a pipe with the latrine pit. The inside of the troughs were painted with crude oil, inside, once or twice daily.

There was considerable difficulty experienced in the care of latrines. The boxes used were not of a good pattern. They were too heavy and clumsy. They could not easily be shifted inside of the houses to allow for burning out the pits. They were constantly breaking. The sides of the pits were frequently caving in. It was difficult to keep them fly proof. A great deal of labor was required for their care, about 50 working hours per day per regiment. Though it was possible by this method to keep the latrines fairly free from flies, the method of latrine management was not satisfactory.

The method of spraying latrines daily with a mixture of coal oil and lamp black was used for care of latrines at the camp at New Braunfels (Landa Park), Tex., during the latter part of August. It gave better results and was much easier than the burning method. There were fewer flies about the latrines, the pits were more easily kept fly proof. When coal oil and lampblack are used, the mixture of 1 pound of lampblack to 4 gallons of oil is sprayed through the openings into the latrine pit. The quantity is 1 gallon of the mixture for each pit per day. The boxes remain in place. A film of oil is deposited over all material in the pit, which kills any fly eggs that may be deposited. In case the work has been done in a perfunctory manner, not enough of the mixture sprayed into the pits, so that flies are breeding, the pits can be burned from time to time. It will be found that there will be enough oil and paper in the pit to make a hot fire if the paper is lighted. The box must be removed before the burning is attempted, otherwise it will be burned up. A combination of the spraying method with burning once weekly will reduce the amount of material in the latrine, prolong its use, and at the same time kill any fly eggs or larvae which may be present. No method for care of latrines is perfect. The spraying method has to be used in order to be effective. The work must be done under responsible supervision otherwise, particularly with inexperienced troops, it will be neglected or not done at all. Treatment of latrines by spraying seems to be the best method yet devised. If carried out with any reasonable care it gives much better results and entails much less work than the burning process. There is little difference in cost between the two methods. Coal oil costs, in this district, but a fraction of a cent more a gallon than crude oil. There is less waste when the oil is used in sprays. The utility of the lampblack as a component of the mixture is doubtful. It blackens the inside of the pit and box, making less light in the pit. It may have some value as a deodorant and perhaps in some way inhibits fly breeding. The cost of lampblack is about 15 cents per pound. Bone black, costing but 8 cents per pound, has been used as a substitute. It is not as good as the lampblack, as it does not mix well with the oil. It settles to the bottom of the container. If the boxes are fly and light tight it would seem that lampblack could be dispensed with and results practically as good be obtained by spraying with oil alone.

Types of sprays used.—The sprayer which has given the best satisfaction is the "Brown compressed air sprayer," manufactured in Rochester, N. Y. Sprays of this type were of 3-gallon capacity. They are the kind used for tree or brush spraying. Each sprayer has an air pump for compression. There is a 3-foot rubber pipe with nozzle. The sprayer is of about the size and has much the appearance of the fire extinguishers in common use. There is a webbing strap by means of which the apparatus can be slung over the shoulder of the operator. Sprayers of the size mentioned are best, as they can be operated by one man. They are quite simple; less apt to

get out of order than larger tree sprayers. As more of them are furnished, in case one is out of order, others can be used. Two or more men can be spraying different latrines at the same time, thus shortening the time for work. Smaller hand sprays were used, but were found to be too weak and to make the process too tedious.

The Brown sprayers are made in two grades, of galvanized iron and of copper. When oil is used, the galvanized-iron kind is as good as the more expensive copper. The difference in cost is \$4 for the iron and \$7.50 for the copper. The rubber hose will have to be renewed at intervals, as it is rotted by the oil. In case sprayers are not to be had, garden sprinkling pots may be used. They are not as satisfactory in that they do not give a fine enough spray.

The sprays are now in use in the Third Illinois Infantry Regiment. Requisitions have been made for enough sprayers to supply the division in camp at Camp Wilson and for use at the subcamps at New Braunfels and Leon Springs.

Bathhouses.—Bathhouses with shower baths were built for each battalion throughout the camp, both for use of officers and enlisted men. Each enlisted men's bathhouse was provided with a "laundry stand." This was an inclined shelf for scrubbing clothing. Along the top of the shelf there is a water pipe provided with several faucets. When clothing is being washed, fresh water can be run over the inclined shelf as desired.

One bathhouse for officers and one for enlisted men of each regiment is provided with a heater for furnishing hot water and for heating the house. Work of installation of these heaters was not complete at the close of the year 1916. About one-third of the regiments have been supplied. The work had been delayed on account of shortage in the number of heaters and the necessity for first supplying camps which were situated in colder localities. During the hot weather the shower baths are much used. Later in the season, as the weather becomes cooler, there is less bathing. The men of the command, however, deserve great credit for the care they have taken to maintain cleanliness, even under adverse circumstances. Men were bathing and scrubbing clothing in cold weather in December where the bathhouses had not been heated and hot water was not supplied.

Physical improvement of the command.—During the period of training the physical condition of men of the command has notably improved. This has been very apparent to all who have had opportunity to see the troops at the time of their arrival and again a few months later. Under camp conditions, with regular training, good food, and life in the open, men have gained in weight and strength. They have acquired confidence in their ability to do work which may be required of them. They have gained strength, so that they have been able to march and perform work of which they were incapable.

The time of training has been short. None of the militia commands have been in camp over six months. During this short period of training the benefits of training have been great. Could similar training be given young men over a longer period, greater benefits would be gained. Many of the men at Camp Wilson were of mature years. For them the benefits were not so great as would have been the case had they received their military experience during the developmental period of life. The older men had, many of them, assumed responsibilities at home. Protracted absence from their homes caused anxiety. They were anxious to return and so took less interest in their military duties. It is believed that, while all men will derive benefit from military training in camp, by far the greatest benefit will be given the younger men.

The divisional march to Austin, Tex.—During the period from September 16 to October 2 the Twelfth Provisional Division was on march to Camp Mabry, Austin, Tex., and return. On this march the troops were given a valuable experience and many lessons of value were learned by both enlisted men and officers.

The division was accompanied by a complete divisional sanitary train. There were two ambulance companies of Regular and two of militia. There was one field hospital of Regular troops (No. 6 motorized). There were three field hospitals belonging to the Organized Militia. The march was made for them, as well as for the regimental Medical Department detachments, a period of training which closely approximated conditions in actual warfare. One field hospital was pitched each night and the sick of the division were evacuated through it to the base hospital at Fort Sam Houston. The number of cases treated in the field hospitals varied from 16 to 155 per day.

The experience of the march brought out the advantage of the motorized field hospital over the hospital which has but mule transportation. The advantage consists not only in its greater mobility but also in the superiority of the service which can be rendered by its personnel. Men who have been transported on the march and are relieved from the work incident to the care of animals have energy to devote to work of the sanitary organization to which they may be assigned which is manifest

in the higher grade of work done by the motorized organization. While excellent work was done by the men of the mule-drawn field hospitals, the efficiency was low as compared with the motorized hospital. This was aside from any difference in training between the various organizations. It was a natural result of increased capacity by reason of the fact that the men were not exhausted by a day's march before commencing to do their special work with the sanitary units.

A great deal of difficulty was experienced in making out the required records for sick and wounded. Card forms No. 52 were used and transfer cards were made out for cases sent to the base hospital. In some instances men engaged on the clerical work were at work through the entire night, and in nearly every instance the records were not correct. This was particularly true of the militia organizations, which were not experienced in clerical work. It was demonstrated that for field work, particularly with inexperienced organizations, the clerical work required must be of the very simplest, and that even then correct and complete records can not be expected.

Evacuation of the sick was done by motor ambulances. Three hundred and eighty-nine cases were sent to the base hospital from camps along the route. The distance to Austin is 85 miles. Without the motor ambulances evacuation to Fort Sam Houston as a base would have been impossible. There were four motor ambulances used. Each of them with good roads was able to do the work which it would have required 12 mule-drawn ambulances to accomplish. There were two cases of acute appendicitis transferred which would not have reached the base hospital in time for successful operation had mule-drawn ambulances been used.

During the march 3.307 per cent of the militia troops were sent to the base hospital. Many of the men had disqualifications for which they were discharged on certificates of disability. There appeared a number of venereal cases which had been concealed while the men were in camp. The presence of defectives with the command had during the first part of the march a demoralizing effect upon other men of the command. When men who had disabilities fell out of line others who were able to march followed their example. With the elimination of the defectives there was a noticeable improvement in the rest of the command. This was demonstrable not only in the marching ability but also in the spirit which was manifest. The men who remained were more cheerful and confident by reason of being relieved of undesirable companions.

The necessity for careful weeding out of troops before muster into service was very plain. Though many had been rejected at the time of muster, it was shown that requirements should be even more strictly maintained, not only on account of the saving to the Government in anticipating possible pension claims, but in the better discipline and courage of troops which are sound.

Inspection of camp sites left on the march was made by the division inspector and the sanitary inspector. The inspections were very thorough and careful records were made. Irregularities were brought to the attention of commanders. During the march there was remarkable improvement shown in care of camps. The areas left by some regiments were absolutely free from refuse. Only by the brown patches of earth where latrines and kitchens fires had been covered could it be known that a regiment had been camped on the ground. It was impressed upon all inexperienced troops that the health of other commands which might occupy their camping grounds or the health of their own command on returning to the old camp sites would depend upon the way in which camps were left. Men who had contracted slovenly camp habits were cured.

The experience gained by the Medical Department personnel was particularly valuable. Many of the officers and men had never before realized exactly what was their function in the Military Establishment. To such persons the realization that they had an important part to play in the Military Establishment was most beneficial. The necessity for the divisional sanitary train was made apparent to many who had not known its use. As a result of the experience gained there will probably be several field hospitals and ambulance companies organized.

The division surgeon and sanitary inspector, Nogales district, reports as follows:

SICKNESS AND MORTALITY.

The first part of this period presented nothing unusual, the average sickness being noted. On the departure of the California Infantry Brigade, the last of October, and the arrival of the Alabama Infantry Brigade, field hospital, ambulance company, and signal corps company, the sickness began a steady increase. This increase at first was due to the large number of venereal diseases that these troops brought with them to this station. These cases were all rounded up and put into the hospital, some 43 being put in at once.

On arrival of these troops the field instruction immediately began, consisting of practice marches, etc. The later part of November the Fourth Infantry, and early in December the Second Infantry, made practice marches to Tucson and return. Quite a marked rise in the sickness began to be noticed at this time, due to respiratory diseases (influenza in its different manifestations).

The Idaho Infantry suffered in this respect as well as the Alabama troops. As a means of reducing the number of cases of influenza, the following recommendations were made:

"1. On December 6 there were in the base hospital 189 cases of respiratory diseases—rhinitis, none; tonsillitis, 15; bronchitis, 10; pneumonia, 10; influenza, 73; pleurisy, 1. The Alabama Infantry, which had just completed a march to Tucson and return, had under treatment in their camp 86 cases and the Second Idaho 23 cases. And this does not include many cases who have been prescribed for but not taken on sick report.

"2. Investigating the cause, all regimental surgeons express the opinion that most of the trouble, if not all, is due to the open mess sheds where the men are exposed to the cold winds of the early mornings and nights.

"3. It should be borne in mind that the temperature in and around Nogales varies as much as 50° or more from noonday to early morning. The nights and early mornings are very cold.

"4. The district surgeon and regimental surgeons are of the opinion that the troops have not sufficient shelter for this altitude and climate, and therefore recommend that steps be taken immediately to close all mess sheds and to floor and wall all tents.

"5. Furthermore, it is recommended that maneuvers and marches should be modified and conducted in such manner as will permit the men to occupy their own tents each night, certainly until the epidemic of respiratory diseases is over.

"6. As an example of the harmfulness of marches at this time of the year in this altitude, the sick report of the Fourth Alabama might be considered. During the month of November, in this regiment, 9 cases of respiratory diseases were taken on sick report. From December 1 to date there have been 125 such cases, and it is believed that these cases resulted directly from the exposure to the cold nights and early mornings on their return march from Tucson."

Still the epidemic continued, and while the number of cases decreased somewhat the severity of the cases increased, resulting in pneumonia.

During December there were admitted to the base hospital 47 pneumonias, distributed as follows: First Alabama Infantry, 27; Second Alabama Infantry, 6; Fourth Alabama Infantry, 10; First Alabama Ambulance Company, 1; Second Idaho Infantry, 1; First California Field Artillery, 1; Utah Cavalry, 1.

During December there were 4 deaths from pneumonia, a mortality of 9.7 per cent.

Various causes have been given by different medical officers as to the comparatively large number of pneumonias: Unacclimated condition of the Alabama troops; reduced vitality of these troops, especially those coming from Mobile and along the Gulf coast, their vitality having been reduced by malaria and hookworm diseases, the latter disease having been found in the Alabama troops; carelessness in the observance of the rules of personal hygiene; exposure on practice marches and on guard; contact exposure in picture shows; contact exposure in the tents; and numerous other causes, which leads to the conclusion that they have all been factors. And on this assumption every effort has been made under the circumstances to reduce these pneumonias by attacking every and all causes.

The following recommendations were made, and while some of them were made in January, 1917, they relate to conditions in 1916, and therefore it is thought proper to include them:

"JANUARY 5, 1917.

"As a means of reducing the epidemic of pneumonia and influenza, which has become quite serious, it is recommended that sufficient tents be furnished the Alabama troops to give a tent to each four men. This will reduce the liability of contact infection, the principal manner in which the infection is transmitted. Furthermore, each man should be required to use his own drinking cup, wash basin, and towel. Expectoration in and around the tents should be absolutely prohibited. This plan was carried out with great success by the present Surgeon General in eliminating pneumonia from the laborers on the Panama Canal and the miners in South Africa."

"JANUARY 6, 1917.

"1. The pneumonia situation has reached such a condition of seriousness that it is thought proper to recommend every procedure that will have a tendency to reduce it.

"2. The histories of many of the cases show that they experienced a chilling of their bodies, which was soon followed by pain in the side and sickness. Many of these men

go to town in the early afternoon with only a sweater, which, after all, is a very poor garment for warmth, and going home late at night probably in a jitney they become chilled. Furthermore, in going to town they usually land in the picture show, where they inhale an atmosphere impregnated with pneumonia, influenza, and probably cerebrospinal meningitis germs.

"3. Therefore it is recommended that the Alabama troops be not allowed to be absent from their camps after dark, and that all troops be prohibited from attending picture shows or other places of assemblages until this epidemic of influenza, pneumonia, and measles is over."

Measles.—Measles, also, has caused a marked morbidity. This disease began to assume epidemic form about December 12. By December 31 the epidemic reached its height, 157 cases being in hospital for that cause alone. The First Alabama Infantry gave the largest number by far. Cases were isolated for a time in the base hospital, and when this hospital began to reach its capacity the Alabama Field Hospital was opened December 17, for the care of measles, mumps, and venereal cases, thus reducing somewhat the pressure at the base hospital.

Cerebrospinal meningitis.—On November 8 a case occurred in the District of Columbia Signal Corps. Its source could not be determined. It was thought to have been contracted from Mexicans, as the man gave a history of having been in Mexico about a week before he took sick. In this connection it is of interest to note that on January 1, 1917, a case of cerebrospinal fever occurred in Battery D, Sixth Field Artillery. This whole battery was examined bacteriologically, with negative findings in every case, which again leads to the belief that picture shows, where the soldiers come in very close contact with a Mexican population that has no medical supervision, is the probable source of this infection.

The Alabama troops gave the largest per cent of sickness. As compared with the Regulars, they gave an average morbidity for December of 8.1 per cent, as against 3 per cent for the Regulars. In the Alabama troops there was quite a difference in morbidity and mortality.

It is interesting to note that the ambulance company and the field hospital had a small morbidity. This may be due to the fact that these men were better cared for and did no guard duty.

Sanitation.—Sanitation, on the whole, has been excellent throughout the camps. The camp sites have been excellent, being on hillsides, thus giving very good drainage. Water was obtained from the Nogales town supply, of excellent quality and in sufficient quantity.

Food and its preparation.—This has been excellent, no cases being reported in the camps where the quality and quantity were not what they should be. At the base hospital, on account of the limited facilities, much difficulty was experienced in feeding the large number of patients during the fall. With the installation of the diet kitchen, dish-washing room, and officers' mess room it is thought this will be corrected in a large measure.

Incinerators placed near the kitchens have been used to dispose of slops, garbage, and camp refuse. Manure has been hauled away to the dump pile, several miles from the camp, and burned. The Harvard box latrines have been in use, being burned out with straw and oil once a day. This latrine has not been altogether satisfactory in this camp, for in many places the pits had to be dug by being blasted into the solid rock. The liquid contents have not been absorbed, and in some cases where it was attempted to fill up these pits the earth thrown in only had the effect of pushing the liquid fecal matter out over the brim. In those localities where it is proposed to build cantonments these pits will have to be dealt with, either to consume the contents with a large quantity of quicklime or pumped out and hauled away.

Clothing.—There was considerable complaint in the fall that sufficient clothing was not furnished the troops in this district.

The morbidity and mortality will be more specifically dealt with in the report from the base hospital, for practically all serious cases and all deaths occurred at that hospital.

The department laboratory.—This institution has been of great value to the district surgeon and sanitary inspector in making early diagnoses in cases of infection, thus giving an early opportunity to stamp out infection. It is believed that the principal function of these laboratories in the future is to aid the sanitary inspector in the sanitary control of infectious diseases.

The surgeon, Base Hospital No. 1, Fort Sam Houston, Tex., reports as follows:

The post hospital at Fort Sam Houston was designated by the Secretary of War as the base hospital for the Southern Department on November 3, 1915, and as Base

Hospital No. 1 on September 28, 1916. This hospital was constructed nine years ago and has been added to from time to time since that date. It consists of eight wards, each ward capable of accommodating 25 patients if proper use is made of the porches, with the usual arrangement of the basement, offices on the first floor, operating room, library, and dressing rooms on the second floor; room for Hospital Corps personnel and prison ward on the third floor. In addition there are the usual rooms on the second and third floors over the dining room originally intended for housing the hospital personnel, but these rooms have been used for patients.

When the militia were called into the Federal service, it was necessary to enlarge this hospital. This was accomplished by building 18 standard temporary wards, a storeroom, which contains a room for patients' effects, a linen room, and a small room used for hospital personnel, a large L-shaped dining room, a kitchen, and the necessary toilet and bath accommodations. The temporary wards were constructed in two installments. First construction consisted of 4 wards, a dining room, a latrine (containing 12 closets and lavatory facilities), and a bathhouse consisting of 12 showers. The work on these buildings was begun on June 7 and completed June 25, 1916. The second construction consisted of 14 wards, a storeroom, an additional dining room, and a kitchen. The work on this construction was begun July 7 and finished August 15, 1916.

Patients were first received in the four wards constructed on July 5 and in the last 14 wards constructed on July 14.

The temporary wards normally accommodate 30 patients. This number can be increased to 34 without material crowding, and by using the porch 40 patients can be cared for in each ward. Counting 40 patients to each temporary ward, the maximum bed capacity of this hospital would be 980.

Twenty-eight deaths from various causes occurred during the year.

The operating room in the post hospital was used as the operating room for the base hospital. It has white tiling on the floor and on the wall to the height of 5 feet. The room contains two windows on the north and a skylight. It is splendidly lighted at night and on dark days by a Noshado light.

The department laboratory occupies the first floor and basement of the isolation building in this hospital group. This laboratory does the work for this hospital.

The X-ray machine used is a Wappler 4-kilowatt, 220 alternating current, Coolidge equipment. The results have been uniformly excellent.

The post hospital is of light brick construction, heated by a hot-water system.

The temporary wards are constructed of pine, 100 feet long by 20 feet wide with an 8-foot porch surrounding entire ward. The roof is tarred paper. The dining room and kitchen are constructed and covered by the same material. The floor in the kitchen is of concrete. The entire temporary plant is heated by steam, which is furnished by a battery of six boilers. All buildings are lighted by electricity.

The post hospital contains the usual bathing facilities. A bathhouse with concrete floor, 12 shower baths, furnished with hot and cold water, is situated about the center of the temporary wards and furnishes adequate bathing facilities.

The post hospital and temporary hospital buildings are connected with the post sewer system. Excreta is disposed of in that way.

Garbage is collected in cans and carried away by the Quartermaster Department, and destroyed in the post crematory.

Fort Sam Houston is connected with the San Antonio water supply, which is abundant, comes from artesian wells, and is pure.

Aside from the commissary, the food supply is purchased from the San Antonio markets. The quality is excellent and the quantity sufficient. The kitchen facilities of this hospital are excellent and entirely adequate to handle at least a thousand patients.

The entire hospital is equipped with the Standard Medical Department equipment of excellent quality and abundant in quantity.

The maximum number of medical officers on duty at this hospital during the year was 59 and the average 21.69.

The maximum number of enlisted men, Medical Department on duty was 235, and the average number 158.99.

The maximum number of members of the Army Nurse Corps on duty at this hospital was 58 and the average number 42.81.

When it became evident that this hospital would have to be enlarged, application was made for the assignment of members of the Army Nurse Corps to duty here. The first nurses arrived June 30. Fortunately, it was possible to rent the Cunningham property for a nurses home. This building will accommodate about 20 nurses. Plans were immediately made to build additional shelter for the nurses, and by August 15 accommodations were ready for 56 nurses. It was the intention at first to construct

two buildings similar to the standard temporary ward divided into rooms with the idea that two nurses should live in each room. These two buildings were constructed on the Cunningham property, and owing to the location of trees, it was necessary to make very material changes in the design of the buildings. They are better built than the wards, and the porch, which is 10 feet, is on the east side of the buildings only. Each building has the necessary bathroom and lavatory facilities, with hot and cold water. The hot water is furnished by a Pittsburgh heater. The buildings are lighted by electricity and are heated by a gas stove in each room. Taking it all together, the accommodations have proved extremely satisfactory. It is estimated that the two buildings for the nurses cost \$3,000 apiece. The total allotment made for this hospital since June, 1916, is \$56,828.90. This statement explains why only \$50,828.90 was reported for the construction of the temporary hospital.

THE PUNITIVE EXPEDITION INTO MEXICO.

The mean strength of all troops, including officers, on the expedition into northern Mexico was 9,659, or when averaged for the entire year, 8,343, on which is based the calculation for this report.

The following figures cover the period from March, 1916 (the beginning of the expedition) to the end of the year.

The admission rate for all causes was 810.26, that for disease being 688 and that for external causes 122.26. The diseases causing the highest admission rates were: Diarrhea and enteritis, 193.10; venereal diseases, 64.60; diseases of the pharynx, 51.66; malarial fevers, 29.96; undetermined fevers, 24.81; and diseases of the teeth and gums, 23.73.

The noneffective rate was 15.41 for all causes; that for disease being 12.79 and for external causes, 2.62. The two diseases causing the highest noneffective rate were diarrhea and enteritis, 2.21, and venereal diseases, 2.14, respectively.

The rate for discharge on certificate of disability was 18.89; that for disease being 15.16, and for external causes, 3.73.

The death rate for all causes was 7.79 per 1,000; that for disease being 2.28, and for external causes, 5.51. In all there were 65 deaths, 46 of which were attributable to external causes.

PUNITIVE EXPEDITION, MEXICO—SPECIAL DISEASES.

Diarrhea and dysentery.—The epidemic which started at El Valle the first part of July gradually subsided under the sanitary measures adopted, so that on August 1 there were 9.5 per thousand present noneffective. During August this further decreased so that on August 31 there were 4 per thousand present noneffective.

At Dublan the average for the month was 3.1 per 1,000 present noneffective.

For the whole division the average for the month was 4.5 per 1,000 present noneffective.

Measures taken to prevent these diseases in addition to those already in use are embodied in an approved sanitary recommendation of the division surgeon and a sanitary memorandum of the sanitary inspector, as follows:

In view of the cases of infectious disease occurring in this division, it is hereby recommended that the following order be issued for the division:

No persons will be allowed to work about or open stores in the camps of this provision division until they have been examined by a medical officer, have received typhoid prophylaxis, been vaccinated and examined for vermin. They will be regularly inspected by a medical officer.

No foods except articles in original packages or drinks except those in original bottles from the United States, or fruits except those having a rind will be sold.

In view of the fact that infectious disease of intestinal type has occurred in camp certain sanitary precautions are again recommended:

All cooks and assistants should be of cleanly personal habits, always washing their hands before handling or serving food. Any cook or assistant with intestinal trouble should be relieved promptly till he has recovered.

Each man should wash his hands before eating and should carefully scald his plate, cup, knife, fork, and spoon before eating. This scalding should be thorough, and the water for the purpose should be kept on the fire and boiling until the last man has had an opportunity to use it.

Nothing should be eaten or drunk outside of the company mess except package or canned goods which have been carefully packed by the manufacturer, and are still packed when bought. Fruits with a rind are permissible.

No raw vegetables or milk should be eaten.

As the infection in this type of disease is always taken through the mouth the necessity for the above precautions would seem clear.

The regimental medical officers will keep a strict supervision of the men of their command to detect the presence of any cases of fever, diarrhea or dysentery. The cases of fever and dysentery should be sent to the hospital for isolation.

Veneral diseases.—Dublan showed the largest figures being, average present noneffective for the month 3.5 per 1,000.

Early in the establishment of the camp at Dublan prostitutes began to practice their trade in the outskirts of the camp. Early in July they were rounded up, segregated, and put under observation. It is believed that these measures combined with the measures of prophylaxis as provided for in General Orders No. 17, 1912, kept these diseases at this comparatively low figure.

Fevers.—There were 51 cases of fever at Dublan during the month: Six proved to be paratyphoid (3 of which were diagnosed by laboratory findings); 11 proved to be malaria (determined by microscopical findings); 2 proved to be tonsilitis; 1 proved to be bronchitis; 1 proved to be dermatitis of the nose, type undetermined; 29 were fevers of a few days' duration, probably due to digestive disturbances as no other cause could be found.

About the 11th of August the Thirteenth Cavalry at Las Galeras on the Santa Maria River began to develop malarial fever. The command was at once put on quinine prophylaxis, isolation of the sick, and the use of mosquito bars.

The disease steadily increased up to the last of the month, when it was 2.1 per 1,000. On August 29 the command arrived at Dublan and as there are no mosquitoes at Dublan it is believed the infection will rapidly subside under the above measures.

The intestinal diseases have diminished very much under the measures of cleanliness of cooks, kitchens, and the sterilization of mess kits immediately before eating. For some time past all water for drinking purposes has been boiled, as analysis showed the water to be impure in many cases.

There were no prevailing diseases, but several cases of malaria developed. Prophylactic doses of quinine were given to the entire command twice a week and there was no epidemic of malaria. The number of mosquitoes and flies was greatly reduced owing to the cold weather. A few mild cases which were clinically diagnosed dysentery were noted but were promptly cleared up after a few doses of emetin and salines. Only once was there more than one case under treatment at the same time. Dietetic errors caused some cases of gastritis and gastroenteritis. The malaria in the Thirteenth Cavalry has practically stopped under the measures of isolation of the sick and cinchonization of the command.

Paratyphoid fever has been checked in the Eleventh Cavalry, except in September 17 cases came down with the disease. This was thoroughly investigated but nothing definite could be found to account for the infection. It was thought that some hamburger steak

eaten on September 11 was the probable cause of the infection; but the feces of the cook and kitchen police proved negative for paratyphoid, and on questioning the sick men more closely the majority of them said they felt bad a few days before they ate the hamburger steak. A more scrupulous cleanliness of the kitchen and kitchen utensils was insisted on and carried out; further, water was boiled for drinking purposes. These cases in the Eleventh Cavalry have since gradually decreased. A few cases of this disease occurred in the Thirteenth Cavalry, and the Seventh Cavalry still continued to have cases.

Provisions were made to vaccinate the whole command with anti-paratyphoid vaccine. The Seventh, Eleventh, and Thirteenth Cavalry and Fourth Field Artillery were given their first dose September 29 and 30.

The following recommendations were made to the commanding officer at Camp Dublin:

Many of the latrines have been found without the piece of tin on the inside of the box to deflect the urine to the center of the pit. This should be corrected at once wherever needed.

The day picket lines on the river bank are not sufficiently policed. This manure should be hauled away at least twice a week to the dump northwest of camp, there to be burned.

There is still some diarrhea in the camp and it is believed the following additional sanitary precautions should be adopted in view of the fact that in all probabilities this diarrhea, while mild in type, is of an infectious character and transmitted by carriers and by contact:

1. The cooks should be required to keep their persons scrupulously clean, likewise the kitchen police, and this feature should be supervised by the company commander and the surgeon.
2. No cook should be permitted to cook or handle food if suffering with diarrhea.
3. Kitchen police should be permanent.
4. Each man, immediately before eating, should be required to dip his meat can, up, knife, fork, and spoon in boiling water.

Periodic prevalence of epidemic diseases and pneumonia in Mexico, also the number of gunshot cases and killed in action, by months.

Year.	Ty-phoid.		Para-typhoid.		Small-pox.		Measles.		Diph-theria.		Cerebro-spinal men-igitis.		Pneu-monia.		Gunshot wounds.		Killed and wounded in action.	
	No. 1.		No. 2.		No. 12.		No. 14.		No. 17.		No. 108.		No. 208.		No. 306.		Nos. 462-6.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1916.																		
January.....																		
February.....																		
March.....							2						1		12	9	7	7
April.....							3						2		17	6	12	5
May.....							1						1		12	5	2	2
June.....			1		1		1						1		20	13	11	12
July.....	2		1												10	1		
August.....			3				1								10			
September.....	1		55												3	3		
October.....	2		31										1		8	1		
November.....	2												6		7	2		
December.....													8	3	8			
Total.....	7		91		1		8						20	3	107	40	32	26

The division surgeon, punitive expedition, United States Army, reports as follows:

Medical Department organizations and general equipment.—The regiments are equipped with a regimental infirmary, one ambulance, and the regimental and combat equipment.

While there has been no service on the divisional battle line, there has been some diversity of experience, extensive maneuvers, and camps of the equivalent of one and two brigades, and smaller ones, representing the waiting periods of war.

It has seemed very apparent that the reduction of the medical equipment of a regiment to the combat equipment alone does not give sufficient for its service, and that it should not be less than a hospital infirmary tent, with sufficient supplies for the daily sick calls, an ambulance, and that the combat equipment should be held packed for use in action. The use of a camp infirmary by more than one regiment is impracticable.

In the maneuvers the need of digging tools, folding litters, and of larger amounts of ordinarily used supplies in divisible units or bandoliers for carrying forward to the lines, or for squadrons or troops separating from regiments, instead of the heavy chests now in use was noted.

It is the general opinion that it would be better to adopt a light standard *aparejo* as used by the machine gun companies of the Artillery which would be more easily obtained or repaired or replaced than is the Medical Department pack saddle.

Field hospitals and ambulance companies.—There are with the division two field hospitals, operating with extra equipment, as camp hospitals, but able to move at once. One hospital has motor transportation and one animal transportation.

The two ambulance companies have been organized as motor ambulance companies and their animal ambulances and extra personnel have been organized as provisional companies so that there are now two motor and two animal companies.

The motor companies have been used only for evacuation work. There has been no service behind the battle line, and discussion as to the possibilities of motor transportation under all conditions is partly speculative. There have been certain conditions, however, of water, mud, and sand when the motor transportation could not perform the service of mule-drawn transportation, and while these weaknesses of the motors may be to some extent overcome in the future, it is the conservative opinion here that 50 per cent of the Medical Department transportation for the interior work of a division must be kept, at present, as animal-drawn transportation. The evacuation ambulance companies should be motor companies.

The types of motor ambulances now in use are very satisfactory, and the motor ambulance companies have been very efficient and effective organizations. The Medical Department is handicapped, however, by being compelled to go to another department for the accessory motor vehicles which experience shows are necessary. It should furnish all the transportation needed without regard to its character.

Personnel.—The Medical Department of the expedition has been more liberally supplied with Regular medical officers than could be expected, but it has been difficult at times to meet all conditions. Many changes have occurred and of the medical officers who entered Mexico with the expedition only 54.2 per cent now remain. The number of medical officers in the field has varied from 3.5 to 4.5 per cent. The highest number including the receiving hospital, Columbus, N. Mex., has been 5.5 per cent. Seven-tenths of 1 per cent is the least possible number with which the necessary duties can properly be performed, and this percentage does not give sufficient margin for sanitary work, emergencies and casualties.

The numbers given in the Tables of Organization are barely sufficient, with no allowances for disability and the many additional duties arising. There should be in addition a reserve under the division surgeon for immediate use in emergencies.

The allowances of enlisted personnel with field hospitals and ambulance companies should also be liberal enough to give a reserve for replacing casualties and for performing the many sanitary duties which can not be specifically stated in tables, without reducing too much the working force of those organizations.

Rations.—Owing to the long line of communications the troops were kept longer on the reserve and field rations than has before occurred in the service.

There has been a general feeling that the reserve ration should contain some additional article, and the individual longing is for something sweet. Sirup, additional sugar, and rice have been frequently mentioned.

It is probable that an allowance of dried highly saccharinated fruit, in small packages would be a welcome and wholesome addition to the reserve ration, and would enable men to eat more of the hard bread and tolerate the ration longer.

Beans, both white beans and frijoles, were found to give digestive troubles during the period when the time and facilities for careful cooking were not available.

Notwithstanding the absence of means for keeping food, very little food poisoning occurred.

Equipment of troops.—In the general equipment of troops there is need of a water wagon with filtering attachment and some changes in the rolling kitchens, which are not yet developed to do the kind of cooking desired by American troops.

An improvement should be made in winter clothing for the men for periods when the olive-drab shirt is too light and the olive-drab coat too tight and unsuitable. A decided want is some better and warmer night cover for cold weather, such as a light blanket sleeping bag.

Sanitary methods.—The camp sanitary methods have been those now in general use, modified as necessary by improvised appliances.

Manure and wastes have been burned at the dump, garbage at the kitchens. For latrines, trenches or open pits were used at first; later, boxes improvised from packing boxes of various kinds, a few with only lid covers on pits. Later, oil and hay were used for burning, and still later the method of oil and bone black was used at Camp Dublin.

Water purification.—The Lyster bags, with hypochlorite of lime, were given sufficient test to determine the great usefulness of this method. It is stated that the continued use of water thus purified is unpleasant. This defect is partly due to defective handling, insufficient number of bags, and using too much powder. An effort to obtain a satisfactory neutralizing powder is also recommended.

The Darnall filters were also used by some organizations and gave universal satisfaction, as the water is clarified in the purification and has no unpleasant taste. During a large part of the camp period the water was boiled for drinking, the other appliances being held for active service.

Personal cleanliness, laundries.—A great deficiency, especially for troops operating away from sources of supply, is the means for personal cleanliness and for laundering, and the importance of these matters as sanitary measures can not be too greatly estimated.

Summer shower baths have been made by all troops according to models as shown in prints. Facilities for hand cleanliness and for winter bathing have not been as easily supplied.

Troops can not successfully do their own laundry work for months with cold water, and can not be kept in health when they can not wash and have their clothing laundered in a proper manner.

The establishment of a laundry, where clothing is boiled and ironed, has been found to eliminate lice and several elements of contact infection during the existence of epidemic diseases and to render the use of more expensive and less effective modes of disinfection unnecessary, besides having a good effect on the morale of the command.

Everything must of course give way to active operations, but in the periods of rest it should be the especial function of some department to attend to these matters, supply all necessary means for sanitation, personal cleanliness, and laundry, and this without requisitions and without effort on the part of the troops, and to take over any necessary equipment on movement.

The necessary equipment could be supplied promptly and operated at very much less trouble, labor, and expense and more efficiency than the makeshift methods which have to be slowly developed each time.

Regulations for carrying out sanitary matters.—The principles of sanitation are extremely simple. The amount of labor, wear, and tear of inspection by many individuals in carrying out these principles in the Army are entirely out of proportion and are not creditable as a matter of efficiency.

Approved methods of disposal of wastes, treatment of water, and cleanliness, with all necessary diagrams and regulations, should be published for all conditions of military service, travel on trains, in camps in inhabited country and in wild country, on the march, in one-night camps and in longer camps, and the responsibility placed without question for supplying the means and for carrying out these regulations. The burden at present rests too much on the inspectors.

Base hospitals, medical supply depot, and laboratory.—The cantonment receiving and forwarding hospital at the base, Columbus, has been an extremely active and important part of the expedition; has cared for sick and wounded, furnished supplies and conducted a great variety of helpful functions, and has done this with a minimum expenditure for construction and equipment.

Medical supplies have been plentiful and of good quality. The medical supply depot at El Paso has met all demands; has obtained and shipped supplies of all kinds with remarkable speed, facility, and accommodation, and could not have done better.

Department Laboratory No. 2, at El Paso, has made the blood cultures and examinations of all kinds, including water examinations, and has given telegraphic reports

which have enabled the carrying out of sanitary measures with promptness and confidence, and have gone far beyond the usual field of a laboratory in giving assistance.

Veterinary surgeons.—Reports and recommendations of veterinary surgeons are inclosed.

Although their exact working status is not yet clear, they have been used for cattle and slaughtering inspection, and effort has been made to increase their connection with sanitary matters.

It is recommended that the younger veterinary surgeons be given a course at the Army Medical School, followed by a practical course at a post like Fort Riley, and that their Supply Table and Regulations be given an early revision.

Typhoid prophylaxis, paratyphoid vaccination, and smallpox vaccination.—Some revision of the present ineffective method of recording and checking the dates of the prophylaxis and vaccinations is needed. It was found that a large number of officers and enlisted men had gone over the required period and some had never received the typhoid prophylaxis. A large number of the men who volunteered in 1911 were not given the prophylaxis on their reenlistment, as the period was too short, and were later overlooked. Many were missed in changes of station and often by the surgeons expecting the company commanders to notify them of data on descriptive lists.

Very few civilians on duty with the expedition had received the typhoid prophylaxis.

It is recommended that a new system placing the responsibility entirely on the surgeon be adopted. It has been suggested that a medical descriptive list be kept in which all data concerning prophylaxis, vaccinations, and venereal, malarial, and other medical history of interest to a medical officer be kept and follow the soldier.

Civilians should not be employed for service with the Army until examined, vaccinated, given the prophylaxis, and registered on a descriptive list as are soldiers, and should undergo the same bimonthly and other physical examinations.

Reservists should not be allowed to join without examination, renewal of prophylaxis, and vaccination. Quite a number have joined from their homes with venereal diseases and have been admitted at once to hospitals.

Health of the command.—The admission rate for the period from March 15, 1916, to February 5, 1917, was 585, the constantly noneffective, 25.05, and the death rate, 4.75. The same rates for the Army in 1915 were 726.19, 25.22, and 4.45.

In the early part of the expedition when commands were moving the sick rates were low; later, as they remained longer in partly settled camps, sickness increased; then, as troops became more permanently established, and with more thorough methods of sanitation, the sick reports were reduced, the rates at all times being in proportion to the size of camps, the highest rates and the greatest variety of disease occurring in the largest camps with the greatest civilian contact.

The diseases given the highest admission rates were intestinal diseases, giving a rate of 247.34 per 1,000; fevers, 46.16; venereal, 43.58; tonsillitis, 40.67; respiratory, 24.33. The venereal were mostly old relapsing cases.

Diarrheas, bacillary, and amebic dysenteries, paratyphoid and typhoid fevers are common diseases in northern Mexico. The exact classification of the intestinal diseases, of course, is inexact in the field. Amebic dysentery is common, but not as severe and intractable as in the Philippine Islands.

Ninety-three cases of paratyphoid fever were reported by blood cultures, but during the prevalence of the disease there were two or three times as many cases of mild fevers of undetermined origin, undoubtedly due to the same infection. Seven cases of typhoid were reported by laboratory examination of blood cultures. One had never had the prophylaxis and the others varied from five and one-half years to two and one-half years. It is of interest that these cases occurred in a group of what was apparently a pure paratyphoid epidemic and did not differ clinically. The vaccination of the command ended the paratyphoid fever.

During the prevalence of the above diseases the command was exposed to various elements of infection, innumerable flies, polluted water, and contact infection, and there has been some difference of opinion as to the modes of infection. Flies, which were innumerable, were the probable carriers of the paratyphoid fever. A very marked reduction of intestinal diseases followed the use of boiled water by commands which had been using water untreated.

Malarial fever was almost confined to one regiment, which was for military reasons camped for some time in a wet region. No cases of typhus fever occurred, and there was no mortality from any fever.

Causes of transfer to base hospitals.—Venereal diseases constituted the condition requiring the largest number of transfers to the United States, syphilis giving the greatest number of any disease.

In the first weeks of the expedition gonorrheal cases were the principal causes of transfer, but in the succeeding six months syphilis gave each month the highest rate for disease requiring transfer, and it was unquestionably shown that men with this disease will not stand the hardship of field service. Indeed, their treatment and care has been so troublesome and so expensive that it is very doubtful if it is economical to keep them in the service. All but one of the cases of syphilis were old cases, only one occurring in Mexico, and many of the gonorrheal cases were relapses of old cases.

Deaths.—There were 57 deaths, 20 or 1.87 per 1,000 from disease and 37 or 3.08 per 1,000 from injury, or a ratio of 1 death from disease to 1.85 from injury.

Evacuation of patients on withdrawal of troops.—During the withdrawal of the command from Mexico 320 men were transported to the base hospital, Columbus, N. Mex. Of this number 175 were transported by ambulances, 39 recumbent and 136 sitting, and 145 by truck trains, 89 as guards and 56 as passengers, this number including many slight cases.

All cases were transported comfortably and without suffering or mortality.

Special features of the expedition.—The command entered Mexico with equipment "A" before the cold weather was over, operated actively in a difficult desert country on a long line of communications with light clothing, shelter, and food supply. Officers and men were on a restricted ration for a longer period than known in our Army.

After the active period, without materially increased means, clean, well-kept, orderly camps were established. Adobe was used for shelter, sanitary appliances, and cooking. Starting with separate appliances and fires for open cooking, ovens, boiling water, and incinerators an economical combined adobe range with one fire was developed for these purposes.

The punitive expedition lived nearer the earth and learned to get along with less than any command in our experience. It has been hardened by active service and very profitably interested and occupied in professional work and training; has been cheerful, and has maintained the good health and sanitation that go with good discipline. The country has never had a more thoroughly trained and fit command than the one which marched back to the border.

With the direct effective methods and the cordial backing of the division commander the task of handling the different epidemic diseases and sanitary matters in the expedition has been an easy and pleasant one.

CIRCULAR 12.

OFFICE DIVISION SURGEON,
PROVISIONAL DIVISION,
Dublan, Mexico, September 8, 1916.

Medical officers on duty with the Provisional Division, punitive expedition, will make report on the operation of the Medical Department coming within their experience during the expedition. Junior medical officers serving as assistants will not be required to make report but are invited to make such report and recommendations as they may desire.

It is particularly desired that the work of all medical officers and enlisted personnel of the Medical Department be made of record, and that any improvements of the sanitary service developed during the expedition be reported.

The following items are suggested for report as well as any personal experience and matters of interest to the Medical Department and to the history of the expedition.

1. The organization of the Medical Department of the expedition.
2. *Marches and camps.*—Any especially arduous marches of interest with report of effect on the command, and the working of the Medical Department units.
3. Medical Department personnel with recommendation for any changes.
4. The equipment of the Medical Department with any recommendations as to changes or superfluous or deficient equipment.
5. *Transportation.*—The amount needed for organizations on the march, in camps, for evacuation of the sick and wounded. Questions of mule and motor transportation and their fields of usefulness on and off roads, etc.; experience in transportation of sick and wounded; desirability of the Medical Department owning and supplying its own transportation.
6. *Rations and diet.*—Modifications which should be made in the reserve ration; length of time it can be used without evil results; the first articles which should be added to make field rations; cooking equipment for different Medical Department units.
7. Observation on methods of water purification and use of purified and unpurified water by the command.

8. *Camp sanitation.*—Recommendations as to the absolutely essential measures for moving command, in camps of a few days, and in more permanent camps which should be formulated in orders to the Army, and which should include the departments of supply. Is the burden of carrying out common well-known sanitary measures accepted by the proper officers?

84. Any changes in Medical Department reports, returns, or forms.

9. The nature of the diseases encountered; diseases due to food, water, contact infection, flies, dust, climate; discuss the camp diarrheas or dysenteries; comparative sickness in moving commands and in camps.

10. The general physical condition of the command at the close of the expedition.

11. Officers are requested to make up their report at once and to complete and submit immediately on the order for the return of the expedition to the United States.

PUNITIVE EXPEDITION, UNITED STATES ARMY.

Under date of March 30, 1916, the division surgeon states that at the first movement of troops across the border at Columbus, he was directed by the chief of staff to proceed with the troops and investigate the water supply at the proposed camp site at Las Palomas.

Camp was made after a march of about 7 miles, and the division staff established. This troop movement consisted of the Thirteenth Cavalry, Sixth Infantry, and Sixteenth Infantry with regimental sanitary personnel. The Seventh Field Hospital Company and Ambulance Company No. 7 remained with other troops at Columbus. During the three days in this camp, there was opportunity to return to Columbus and have medical officers assigned, etc.

About 12 hours after the troop movement from Columbus, the Seventh and Tenth Cavalry and two batteries of Sixth Field Artillery crossed the line near Culbersons Ranch, N. Mex., under the personal direction of the division commander. This column had sanitary personnel and a small amount of supplies; they marched over 100 miles in two days.

When this camp was reached by this western column, the ambulances, most of the supplies, and two medical officers were left here with the Artillery and detachments, and the regiments of Cavalry proceeded southward at a rapid rate.

The Cavalry and Infantry regiments and headquarters left Palomas on March 16, 17, and 18. The march extended 26 miles over a steep, rocky, dusty road. There was no water en route. Camp was established at Boca Grande, where the water from Casas Grande River was fairly good.

The Seventh Ambulance Company joined at La Espia, the next camp, having marched south by way of Gibsons Ranch. The Seventh Field Hospital joined at Ojo Frederico, having marched by way of Gibsons Ranch with the field trains of the Seventh and Tenth Cavalry; first march 35 miles, second march 17 miles, and third march 26 miles.

At Ojo Frederico the division surgeon, in addition to other duties, resumed command of Field Hospital No. 7. One mule from the field hospital train was dead, and one was exhausted and has not been able to work since the second day. From this point the Field Hospital and Ambulance Corps accompanied the main body. The Field Hospital Company marching on foot was so thoroughly exhausted by a 25-mile march against the wind on the day of reaching here, that had it been necessary to care for the sick or wounded, a great hardship would have resulted to both the personnel of this company and to the patients. Camp was made in a raging dust storm which lasted over 24 hours. For two nights after the wind subsided ice formed in the division surgeon's tent.

In order to carry the requisite amount of rations and forage and not overload the train, considerable of the field hospital equipment was left in Columbus, but 150 patients could now be cared for.

On account of the scattered condition of this command and the fact that each regiment is supplied with far more equipment than is contemplated in the Tables of Organization, there has been little division surgeon work to do.

About the middle of March the division surgeon was able to forward medical officers Hospital Corps, men and supplies to the Seventh, Tenth, and Thirteenth Cavalry Regiments. Maj. Eastman was the senior to go forward.

SANITATION.

The water supply here and at other camps has been and is open to suspicion by reason of the probability of pollution, not poisoning. Many organizations came into the field without the bag, water, sterilizing, and practically none had the hypochlorite powder and the bag both; for the reason consult General Orders 39, 1915.

The division commander asked for a 30-day supply of powder and enough bags to supply each organization.

No diseases have arisen which could be charged to climatic conditions or local infections. Regimental surgeons have been directed to talk lice dangers and prevention in their regiments and to have inspections.

Attention is called to the unfortunate shortage of ranking medical officers at the border stations of the Seventh, Tenth, and Thirteenth Cavalry Regiments, which resulted in two of these regiments taking the field with Medical Reserve Corps officers and one with a junior captain as regimental surgeon. This has now been corrected, but only after two weeks of the campaign have passed.

Assignment of medical officers to regiments, instead of to stations, and with due regard for rank and experience would seem to be indicated.

TRANSPORTATION.

The surgeon medical base group says that a motor ambulance company is promised, which improves the situation in regard to transfer of patients. So far this has been done on motor trucks, irregularly and with some hardship to patients. There have been no serious cases to transfer.

After careful observation, the division surgeon is of the opinion that the personnel of field hospitals and ambulance companies should be provided with transportation. The marches are necessarily long, on account of the scarcity of water and exhaustion; and these companies are not capable of giving the proper care to the sick and wounded after the fatigue of a march of between 20 and 30 miles.

The line of communications is over 200 miles long, and there is but one ambulance company and field hospital now located near its mid point. The location seems logical, but just what would be done with say 200 or more wounded a hundred miles to the south during the four days the field hospital and ambulance company were marching to their assistance, remains problematical. The solution seems to be to motorize the Seventh Ambulance Company and the Seventh Field Hospital as promptly as possible.

The regiments each have mule-drawn ambulances so that sick or injured on inaccessible roads could be brought in. To motorize the field hospital would require 8 three-ton trucks in order to carry the equipment and personnel and 1 seven-passenger touring car for officers preferably Cadillac. The four-wheel drive steer and brake Jeffry Quad seems to be giving excellent service though it makes small gasoline mileage.

Trucks should be purchased by the Medical Department, as ambulances, and could be "temporarily" used to transport the field hospital.

As witness by the difficulties of the Seventh Field Hospital with transportation, at Fort Sam Houston, inexperienced quartermaster drivers, who had to be replaced by Hospital Corps men on the march, etc., so long as the Quartermaster Corps provides transportation for Medical Department units confusion, conflict, and inefficiency will result.

UNITED STATES MILITARY ACADEMY, WEST POINT, N. Y.

The surgeon at the United States Military Academy renders the following interesting report on the health and sanitary conditions at that institution:

Corps of cadets.—The health of the corps has been excellent throughout the year. There were 663 hospital admissions during the year, equivalent to an annual admission rate of 992.5 per thousand. As this is the first sanitary report from this station covering a calendar year, no admission statistics are available for comparison. The last report, however, for the fiscal year ending June 30, 1916, showed an annual admission rate of exactly 1,000 per thousand, as compared with 1,127 per thousand for the year preceding. This is the smallest admission rate recorded in the past 10 years.

The noneffective rate for cadets in hospital was 14.19 per thousand for the calendar year 1916. For the fiscal year ending June 30, 1916, the rate was 13.82 per thousand, as compared with 19.83 for 1915; this is the smallest rate during the past 10 years, except in 1914, when it was 11.92.

With one exception there were no cases of critical illness or of serious injury under treatment during the year; one cadet developed pulmonary tuberculosis and was transferred for treatment to Fort Bayard, N. Mex., where he has since died.

A mild but very contagious epidemic of influenza occurred early in the year, lasting about one month and affecting some 16 per cent of the corps. One hundred and eight

cases were admitted to the hospital for treatment, the average duration of each case being about four days; there were no serious complications. There were four admissions for malaria during the year, two new cases and two recurrences from previous infections. Nine cadets were discharged for physical disability as follows:

Valvular disease of heart.....	3
Venereal disease.....	2
Defective vision.....	2
Chronic atrophic rhinitis.....	1
Chronic otitis media.....	1

Two cadets were transferred to the Walter Reed General Hospital, Washington, D. C., with dementia precox. Two cadets died during the year, both being on leave of absence.

Of the 663 hospital admissions, 152, or 22.92 per cent, were for diseases of the digestive system, including gastritis and gastroenteritis, diarrhea and intestinal colic 82, and constipation 52; general diseases furnished the next largest number, 135, or 20.35 per cent, including 108 cases of influenza; injuries and other affections due to external causes furnished 131, or 19.75 per cent; diseases of the respiratory system 86, or 12.97 per cent; diseases of the eye and ear, including 39 cases of conjunctivitis, 67, or 10.10 per cent. Of the 131 affections due to external causes, 22 were football injuries, 20 due to accidents during riding, 19 to gymnastic exercises, 12 to badly fitting shoes, 9 to baseball, and 3 to basketball.

Football.—During the football season, from September 1 to December 1, there were only 22 accidents requiring hospital treatment. This is the smallest casualty list during the past 10 years and is the direct result of careful supervision of the football squad on the part of the medical officer in charge and of the coaching staff during practice and in contests with other teams.

The following table shows the number of football injuries during the past 10 years and the number of days lost by treatment in hospital:

Year.	Number of cases.	Days lost in hospital.	Average days per case.
1907.....	25	117	4.6
1908.....	62	362	5.8
1909.....	34	174	5.0
1910.....	27	210	7.7
1911.....	34	169	4.9
1912.....	35	269	7.4
1913.....	28	157	5.6
1914.....	36	221	6.1
1915.....	25	159	6.3
1916.....	22	106	4.8

Enlisted men.—There were 255 admissions to sick report during the year in a command numbering 719 men, equivalent to rate of 335 per thousand. The noneffective rate was 7.46 per thousand. As a basis for comparison the following table is submitted showing corresponding rates for fiscal years since 1911:

	1911	1912	1913	1914	1915	1916
Admissions to sick report.....	622	401	415	302	359	231
Rates per thousand (admission).....	825	626	603	468	501	326
Noneffective rates.....	18.87	14.81	15.26	11.25	9.35	7.90
Mean annual strength of command.....	649	648	688	702	716	708

The admissions for transmissible diseases included venereal 24 (10 were readmissions); influenza 29; malaria 3 (2 were readmissions); tuberculosis 1; and cerebrospinal meningitis 1.

The general sanitary conditions were excellent throughout the year. Mosquito breeding was kept at a minimum by oiling stagnant water in places where drainage was impracticable and in cutting grass and foliage in the neighborhood of habitations. Fly breeding was controlled by prompt removal of manure and by treating stable floors with a solution of hellebore in a strength one-half pound to 10 gallons.

Poliomyelitis.—Late in May poliomyelitis in epidemic form appeared in Brooklyn, having its apparent origin in the water-front section of that city. It spread to the

Borough of Manhattan during the month of June, and by the first week in July more than 100 cases daily were being reported from New York City. The epidemic reached its height in Brooklyn on July 11, when 151 new cases were reported, and in Greater New York on August 3, with 217 new cases. From this time the disease steadily declined in that city, the daily number of new cases falling permanently below 100 on August 25, below 50 on September 10, and below 10 on October 15, reaching the normal average of from 2 to 5 per week during the latter half of December.

Originating as it did in the early summer months, at a time when many residents of the city were about to leave for their annual outing, the disease spread from New York City along the main highways of travel to Long Island and to districts along the Hudson River, then to the central part of the State and later to counties in the north-western section, south and east of Lake Ontario. The most heavily infected counties were, in the order mentioned, those of Long Island, those bordering the southern two-thirds of the Hudson River, and the two central counties containing the cities of Syracuse and Utica. By the middle of July the number of new cases reported from the State (outside New York City) exceeded 25 daily, and on August 1 the number exceeded 50, the maximum being reached on August 22, when 142 cases were reported. From this date there was a decline in the epidemic until the first week in October, when the number of new cases daily fell below 20, reaching the normal level about the middle of November.

On account of the appearance of poliomyelitis during the first week of July in towns along the Hudson River, both above and below West Point, and because of the evident danger of introducing the disease into the garrison by means of visitors and tourists arriving from infected districts, a memorandum was issued on July 8 by the superintendent, on the recommendation of the surgeon, Capt. H. C. Coburn, Medical Corps, forbidding children under 16 years of age from passing back and forth on the reservation, and requiring all persons residing or employed on the reservation to notify the surgeon at once of any suspicious case of illness.

The first recognized case of poliomyelitis in Highland Falls was reported by the local health officer on July 29 in a child 18 months old in an Italian family living near the center of the town; the child died on the following day. The origin of this case is uncertain, but there was a history that the family had been visited by friends from New York City two weeks before.

The second case, also fatal, was reported on July 30, and occurred at the extreme southern end of the town, some 4 or 5 miles distant. In this case the parents stated that the child had been brought from Jersey City about three weeks previously.

The third case occurred about this time in a child of 18 months belonging to a family living in the country 4 miles northwest of the village of Highland Falls. There was a history that the family had been visited by two adults from Brooklyn about two weeks previous to the onset. In these three cases there was an uncertain history of exposure to infantile paralysis in a district known to be infected or of contact with adults who had come from such district, but there could have been no etiological connection between any of them.

The occurrence in the village of Highland Falls of three cases of infantile paralysis, practically simultaneously but at points widely separated, indicated multiple foci of infection at fairly close range and showed the necessity of taking greater precautions to protect the garrison. A general order was accordingly issued on July 31 upon the recommendation of the surgeon, Capt. H. C. Coburn, jr., Medical Corps. The salient provisions of this order were as follows:

The discontinuance of general pleasure travel to and from West Point; visitors to West Point, including persons arriving on business, to be admitted on permit only, after investigation to determine that they had not been residing in infected districts; all enlisted men on duty at West Point to be restricted to the reservation; classified civilian employees to be allowed to come and go on permit; certain other civilian employees to be furnished transportation to and from their work; others to be marched to and from work under charge of a noncommissioned officer; servants not to be allowed to leave the reservation; the vending of all food products, vegetables, fruit, meat, etc., to be prohibited.

By the middle of August all towns in the immediate vicinity of West Point became infected, and as the number of cases reported from these towns showed a steady increase it was thought advisable to still further restrict travel to and from West Point and to reduce to a minimum all outside communication. Accordingly upon recommendation a memorandum was issued on August 14 providing that "all requests for permits to enter the reservation for any purpose, except necessary pleasure purposes, be withdrawn."

From the latter part of July no further cases were reported in Highland Falls until August 19 when I was called in consultation by one of the doctors in that village to

see a suspicious case in a boy of four years. There were no definite physical signs of infantile paralysis, but on the following day a spinal puncture was performed which showed a perfectly clear fluid with a cell count of about 200 per cubic millimeter and a double plus Fehling's reaction. A positive diagnosis was at once made and the case reported to the Surgeon General as poliomyelitis. It may be added that an expert diagnostician from the New York State board of health examined the case a few days later and agreed with the diagnosis. A transitory paralysis of the external rectus of the right eye subsequently appeared, lasting about two weeks. This case occurred in the family of a civilian living about 100 yards from the house in which the first case was reported. As a period of about three weeks elapsed between these two cases and as the incubation stage of the disease is believed to be less than two weeks, it is probable either that some "missed case" occurred in the interval or that the second case was contracted from a carrier who had come into contact with the first or with some other case.

Following this case there were 10 more during the month of August and 10 between the 1st and 15th of September, on which date the last case of this series was reported. On November 16 a child of 3½ years was reported with infantile paralysis living in a family about 7 miles southwest of West Point. The infection was probably contracted at Fort Montgomery, the next township south of Highland Falls. The child was seen in consultation by one of the post medical officers and the diagnosis confirmed. This was the last case occurring in this vicinity so far as known. These 25 cases were about equally divided between the civil and military population of the town, the latter including the families of soldiers and civilian employees.

A large detail of officers was due to report for duty near the end of August and in order to minimize the danger of the introduction of poliomyelitis into the garrison the adult members of their families were not permitted, for a period of two weeks, to associate with children under 16 nor with cadets, except as required by official duties; children of these officers were placed in quarantine for two weeks. Upon their return from furlough on August 28, the second class were placed in camp under guard and were kept from coming in contact with other members of the corps for a period of two weeks. This quarantine, however, did not interfere in any way with academic work. During the continuance of the epidemic in Highland Falls no children under 16 years living on the reservation were allowed to attend school, Sunday school, or church.

As soon as a case of infantile paralysis was reported in the family of any enlisted man in Highland Falls, the soldier was directed to return to his family and to remain there for six weeks. Prior to his return to the garrison for duty his nose and throat were treated daily for three days with an antiseptic solution.

During the last two weeks in August there was a marked increase in the number of cases of infantile paralysis reported in Highland Falls. Up to August 19 there had been only three cases. From that date to August 31, 11 new cases were reported and one each on September 1 and September 2. On account of this rapid increase in cases it was decided to make a complete medical survey of the military population of Highland Falls and to persuade, if possible, the local health officer to do the same with respect to the civil population, with a view to determining whether or not all cases of the disease were being recognized and reported. Accordingly, with the consent of the superintendent, Capt. A. N. Tasker, Medical Corps, was placed in charge of the survey work and was given a commissioned medical officer as an assistant, Lieut. F. B. Hutton, Medical Reserve Corps. On September 7, with the acquiescence of Dr. Kurtz, local health officer, I had an interview at Albany with the deputy health commissioner, Dr. Linsly R. Williams, and explained to him the condition of affairs in Highland Falls, and asked for cooperation of the State board of health in our efforts to make a general medical survey of the town. He very generously agreed to detail one of his "polio experts," who was then on survey work in Long Island, Dr. J. W. Babcock, who reported for duty and began the work of examination on September 12.

Every effort was made to include in this examination all children in the village under 18 years of age. To this end the medical officers were provided with official lists of the names and addresses of the families of all the soldiers and civilian employees, with the number of children in each, while the town authorities furnished Dr. Babcock with the necessary information in regard to the children of the civilians. It is believed that not more than 2 or 3 per cent of children escaped examination. In regard to the scope of the physical examination, it was made with sufficient thoroughness to rule out the possibility of an existing poliomyelitis.

The work was completed in about three weeks and the results testify to the care and thoroughness with which it was done. The report of Capt. Tasker (mentioned under special work of medical officers) includes an analysis of all the cases of infantile paralysis, both military and civil, with statistical information in regard to the medical survey.

On October 14, one month after the onset of the last case in Highland Falls, the quarantine restrictions in regard to adults were removed, and on November 15 children were allowed free access to and from the reservation.

The freedom of this garrison from infantile paralysis was not entirely due to good luck, for every town in the vicinity of West Point was more or less infected from early in July to October, including Fort Montgomery, Cornwall, Newburgh, Peekskill, Garrison, Cold Spring, and Fishkill. Three controlling factors were, in my opinion, active in excluding the disease from West Point: First, and most important, prohibiting children under 16 from passing back and forth off and on the reservation; this measure excluded the prime sources of infection; second, the restriction of travel to and from West Point to persons having official business only, thus minimizing the danger from carriers; and third, the thorough medical survey of Highland Falls which made it possible to identify practically every case of infantile paralysis, and thus enable us to take the necessary precautions against the spread of the disease.

The surgeon sums up his remarks on this subject by offering the following as the policy which should govern in the adoption of regulations for the protection of the garrison at West Point and by which they were guided in their extensive investigation:

Poliomyelitis is a transmissible disease caused by a specific virus which is present in the nose, mouth, and bowel discharges of patients suffering from the disease and also in the nose and throat of healthy associates of poliomyelitis cases, i. e., healthy carriers.

Poliomyelitis is exclusively a human disease, spread either by direct personal contact or indirectly by means of contaminated food and drink.

The incubation period of the disease is usually less than two weeks, and probably in the great majority of cases between three and eight days. Ordinarily the virus does not persist in the body longer than four or five weeks, except in those rare cases that become chronic carriers; hence cases of infantile paralysis which have been kept under supervision for a period of six weeks from the onset of symptoms may be regarded as practically free from danger (Flexner).

Carriers are persons, either adults or children who have recovered from an acute attack of infantile paralysis or who have come into contact with the disease in its acute stages (Emerson). It is not believed that a person may become a carrier by mere association with another carrier. "The difficulty in controlling poliomyelitis lies in the large number of healthy carriers who are the sources of infection in nearly all cases" (Regulations California State board of health).

"Missed cases" are probably exceedingly common on account of the prevalence during an epidemic of abortive cases where no paralysis is present; such cases may outnumber those of frank paralysis.

Poliomyelitis is a disease of early childhood. Of 7,500 cases occurring in New York City, 10 per cent were under 1 year, 85 per cent were under 6 years, and all but 1.7 per cent under 16 years.

ALASKA.

The mean strength of the troops, officers and enlisted men, serving in Alaska during the past year was 770, as compared with 787 in 1915. This force consisted of Infantry, Signal Corps, and Hospital Corps, all white. Alaska still remains the healthiest region in which the Army is stationed.

The admission rate for all causes was 338.96 per 1,000 in 1916, as compared with 378.65 in 1915. The rate for disease was 241.56 per 1,000, and that for external causes 97.40, as compared with 292.24 and 86.40, respectively, in 1915. The corresponding rates for the United States were, for total causes 733.29 per 1,000; that for disease being 604.30, and that for external causes, 128.98. The diseases having the highest admission rates are shown in the following tabulation:

Admission rates for some of the principal diseases for Alaska, American troops, officers and enlisted men.

	Total officers and enlisted men.		Enlisted men.	
	1916	1915	1916	1915
Venereal diseases.....	19.48	24.31	20.13	25.39
Tonsillitis.....	19.48	25.41	18.79	25.21
Gastritis, acute and chronic.....	16.88	2.54	17.45	2.03
Bronchitis.....	11.69	30.49	12.08	28.59
Pharyngitis.....	10.39	12.71	10.74	13.11
Appendicitis.....	10.39	6.35	10.74	6.56
Alcoholism (all).....	9.09	10.17	9.40	10.48
Rheumatism, muscular.....	6.49	15.25	6.71	15.72
Influenza.....	5.19	8.89	5.37	9.17
Diarrhea and enteritis.....	5.19	7.62	5.37	7.86
Constipation.....	3.90	2.54	4.08	2.03
Mental alienation.....	2.60	10.17	2.68	10.48
Rheumatism, articular (all).....	1.30	5.08	1.34	5.24
Synovitis.....	1.30	2.54	1.34	2.03
Tuberculosis (all).....	1.30	1.27	.....	1.31
Malarial fevers.....	.....	1.27	.....	1.31
All causes.....	338.96	378.65	344.97	390.63

The noneffective rate was 9.01 per 1,000 in 1916, as compared with 8.71 in 1915. The rate for disease was 6.23 and for external causes 2.77 per 1,000.

The diseases causing the highest noneffective rates are shown below.

Noneffective rates for some of the principal diseases for Alaska, American troops, officers and enlisted men.

	Total officers and enlisted men.		Enlisted men.	
	1916	1915	1916	1915
Appendicitis.....	0.77	0.39	0.80	0.40
Venereal diseases.....	.70	.53	.72	.54
Bronchitis.....	.35	.37	.36	.34
Tonsillitis.....	.35	.13	.35	.14
Gastritis.....	.18	.02	.19	.02
Rheumatism.....	.17	.33	.18	.34
Mental alienation.....	.12	.27	.13	.28
Alcoholism (all).....	.10	.08	.10	.08
Diarrhea and enteritis.....	.09	.04	.10	.04
Influenza.....	.07	.13	.07	.14
Pharyngitis.....	.06	.07	.06	.07
Constipation.....	.04	.03	.04	.03
Rheumatism, articular (all).....	.02	.06	.03	.06
Tuberculosis (all).....	.02	.15	.....	.15
Synovitis.....	.01	.04	.01	.04
Malarial fevers.....	.....	.01	.....	.01
All causes.....	9.01	8.71	9.23	8.91

The death rate in 1916 was 6.49 per 1,000, and in 1915 was 2.54. In actual numbers 5 deaths occurred, 1 from disease and 4 from external causes.

The discharge rate, all for disease, in 1916, was 21.48 per 1,000, as compared with 11.80 in 1915.

Tables Nos. 3 and 76 give general figures for all enlisted men as compared with those serving in other countries, and Table No. 73 for all officers and enlisted men, together with proportionate figures for disease and injury.

Enlisted men invalided home from Alaska, year 1916.

Cause.	Number of cases.	Percentage of total cases.	Duty.	Discharged on certificate of disability.	Died.	Otherwise disposed of.	Remaining at end of year.
Flat foot.....	4	25.00	.....	4	.....	.....	1
Exophthalmic goiter.....	2	12.50	.....	1	.....	.....	.....
Dislocation of semilunar cartilage.....	2	12.50	.....	2	.....	.....	.....
Arthritis, gonorrheal.....	1	6.25	.....	1	.....	.....	.....
Chronic alcoholism.....	1	6.25	.....	.....	.....	.....	1
Constitutional psychopathic state.....	1	6.25	.....	1	.....	.....	.....
Somnambulism.....	1	6.25	.....	1	.....	.....	.....
Stammering.....	1	6.25	.....	1	.....	.....	.....
Astigmatism.....	1	6.25	1	.....	.....	.....	.....
Otitis, media, chronic.....	1	6.25	1	.....	.....	.....	.....
Fracture, Colles's, with limitation of motion and deformity.....	1	6.25	1	.....	.....	.....	.....
Total cases.....	16	.....	3	11	.....	.....	2
Percentage of total cases.....	.....	100.00	18.75	68.75	.....	.....	12.50

TABLE NO. 27½.—*Influence of station, Alaska, year 1916, on officers and enlisted men.*

Stations.	Mean strength.	Ratio per 1,000 of mean strength.										Average number of days lost.					
		Admission to sick report.		Discharge on certificate of disability.		Deaths.		Total losses.		Noneffective rate.							
		From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.		For each case.	For each soldier.		
										Total.	In hospital.	Total.	In hospital.				
Fort Gibbon.....	210	485.71	304.76	24.39	14.63	14.29	.....	38.68	14.63	8.96	7.78	4.18	.....	3.28	6.75	1.53	5.02
Fort Wm. H. Seward.....	223	417.04	291.48	46.73	42.06	4.48	.....	51.21	46.54	14.43	14.18	10.59	.....	5.28	12.67	3.87	13.28
Fort St. Michael.....	7	366.20	183.10	.....	.....	.....	.....	.....	.....	9.66	9.62	4.31	.....	3.54	9.65	1.68	8.63
Fort Pease.....	7	285.71	.....	.....	.....	.....	.....	.....	.....	15.22	14.83	.....	.....	5.57	19.59	.....	.....
Fort Lisburn.....	96	229.17	156.25	10.64	10.64	.....	.....	10.64	10.64	6.40	5.21	4.72	.....	2.34	10.23	1.73	11.07
Fort Davis.....	104	144.23	87.69	.....	.....	9.63	.....	9.63	.....	4.10	2.08	1.51	.....	1.60	10.40	.06	11.50
Valdez.....	59	15.95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total officers and enlisted men.....	770	338.96	211.69	21.48	17.45	6.49	1.30	27.97	18.75	9.01	8.13	5.44	.....	3.30	9.73	1.99	9.40
Total enlisted men.....	745	344.97	214.77	21.48	17.45	6.71	1.34	28.19	18.79	9.28	8.45	5.54	.....	3.38	9.79	2.03	9.44

PHILIPPINE ISLANDS.

AMERICAN TROOPS (ENLISTED MEN).

By reference to the figures furnished below it will be noted that a slight improvement in the health of the American troops serving in the Philippine Islands resulted during 1916 when compared with the figures for 1915. While the rate for venereal diseases (all) compared favorably with the admission rate for 1915, these diseases still remain a matter of concern. The admission rate for malarial fever has taken a slight drop compared with the rate prevailing for that disease during 1915, being 63.12 for the latter and 62.95 per 1,000 for 1916.

The mean strength of the enlisted American troops stationed in the Philippine Islands for the year was 11,580 (S. G. O.). Of this number 10,635 were white and 945 colored. The statistics for the Philippine Scouts, of whom there were 5,579, will be given separately.

ADMISSION RATES.

During the year there were 9,711 case admissions for all causes, white and colored troops, making a case admission rate of 838.60 per 1,000, as compared with 117.21 case admissions and a case admission rate of 990.45 per 1,000 for 1915, 877.69 for 1914, and 922.06 for 1913.

The case admission rate for disease only was 714.42 for 1916, 871.05 for 1915, 746.61 for 1914, and 776.28 for 1913.

The case admission rate for white troops for all causes was 808.93 as compared with 1172.49 for colored troops, the later having a mean strength of 945 during the year.

The case admission rate for injuries for white troops was 105.88 per 1,000 as compared with 330.16 per 1,000 for colored troops, and for the total American troops, white and colored, 124.18 per 1,000, the lowest rate for several years.

CONSTANTLY NONEFFECTIVE RATES.

The total constantly noneffective rate for the year was 27.88 per 1,000; that for white troops being 26.87 and for the colored, 39.29.

The total noneffective rates for disease only in 1916 was 23.81 per 1,000, as compared with 23.33 for white troops and 29.27 for colored. The rates for 1915 were 25.42, 24.62, 31.73, per 1,000, respectively.

DISCHARGE ON CERTIFICATE OF DISABILITY.

The American soldiers are very rarely discharged in the Philippine Islands, being invalided home and discharged in the United States; however, those so discharged are credited to the Philippines. Table No. 28 shows the diseases for which these discharges were made.

The discharged rate for 1916 was 14.42 per 1,000 as compared with the corresponding rate of 23.22 for 1915. The rate for disease was only 13.13 per 1,000, and that for injury, 1.30, as compared with the corresponding rates of 22.04 and 1.18 for 1915. The total rates for the white troops was 15.23 as compared with 5.29 per 1,000 for the colored troops.

The disease causing the highest number of discharges were: Mental alienation, with a rate of 3.28; tuberculosis, 2.25; flat foot, 1.90; and venereal diseases, 1.21. The corresponding rates for the United States were 2.65, 1.94, 1.42, and 1.63 per 1,000, respectively.

TABLE NO. 28.—*Discharges for disability, American troops in the Philippine Islands, year 1916.*

Cause of discharge.	Number discharged.	Percentage of discharges for disability for disease.	Discharged for disability.				
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.	
				Contracted before enlistment.	Contracted after enlistment.	In line of duty.	Not in line of duty.
DISEASES.							
Diseases of the nervous system and organs of special sense.....	50	32.90	8	42			
Diseases of the nervous system.....	49	32.24	8	41			
Mental alienation.....	38	25.00	3	35			
Dementia precox.....	31	20.39	3	28			
Defective mental development.....	4	2.63		4			
Constitutional psychopathic state.....	3	1.97		3			
Epilepsy.....	4	2.63		4			
Neurasthenia.....	4	2.63	3	1			
All others of the order.....	3	1.97	2	1			
Diseases of the eye.....	1	.66					
Astigmatism.....	1	.66		1			
General diseases.....	46	30.26	29	8	9		
Tuberculosis.....	26	17.11	25	1			
Of the lungs.....	25	16.45	24	1			
Lymphadenitis.....	1	.66	1				
Venereal diseases.....	14	9.21	1	4	9		
Syphilis.....	7	4.61	1	4	3		
Tertiary.....	5	3.29		4	1		
Secondary.....	2	1.32		4	2		
Gonococcus infection.....	7	4.61	1		6		
Arthritis.....	5	3.29			5		
Eye.....	1	.66	1				
Prostatitis.....	1	.66			1		
Exophthalmic goiter.....	3	1.97	1	2			
Articular rheumatism, chronic.....	2	1.32	2				
Alcoholism, chronic.....	1	.66		1			
Diseases of the bones and organs of locomotion.....	33	21.71	9	24		1	
Flat foot.....	22	14.47	1	21			
Diseases of the joints.....	6	3.95	6				
Synovitis.....	4	2.63	4				
Arthritis.....	2	1.32	2				
Hammer toe.....	2	1.32		2			
All others.....	3	1.97	2	1		1	
Diseases of the digestive system.....	8	5.26	6	2			
Peritoneal adhesions following operations.....	3	1.97	3				
Enteroptosis.....	1	.66		1			
Gastritis, chronic.....	1	.66		1			
Hernia, inguinal.....	1	.66	1				
Sprue.....	1	.66	1				
Abscess of liver.....	1	.66	1				
Diseases of the circulatory system.....	6	3.95	2	4			1
Organic heart disease.....	5	3.29	1	4			1
Valvular disease.....	4	2.63		4			1
Endocarditis, chronic.....	1	.66	1				
Varicose veins.....	1	.66	1				

TABLE No. 28.—*Discharges for disability, American troops in the Philippine Islands, year 1916—Continued.*

Cause of discharge.	Num-ber dis- charged.	Per- centage of dis- charges for dis- ability for dise- ase.	Discharged for disability.				
			In line of duty.	Not in line of duty.		Discharged for disability be- fore assignment.	
				Con- tracted before enlist- ment.	Con- tracted after enlist- ment.	In line of duty.	Not in line of duty.
DISEASES—continued.							
Diseases of the genito-urinary system.....	3	1.97		3			
Nephritis, chronic, parenchymatous.....	2	1.32		2			
Enuresis.....	1	.66		1			
Diseases of the skin and its annexa.....	3	1.97	2	1			
Painful cicatrix.....	2	1.32	1	1			
Pellvis rheumatica.....	1	.66					
Diseases of the respiratory system.....	2	1.32	2				
Pleurisy, chronic, fibrinous.....	1	.66	1				
Asthma.....	1	.66	1				
Congenital malformations.....	1	.66		1			
Total for diseases.....	152	100.00	58	85	9	1	1
EXTERNAL CAUSES.							
Fractures.....	6	40.00	5		1		
Secondary results of injuries.....	4	26.87		4			
Lacerated wounds.....	2	13.33	2				
Dislocations.....	1	6.67	1				
Sprains.....	1	6.67	1				
Contusion.....	1	6.67	1				
Total for external causes.....	15	100.00	10	4	1		
Total for disease.....	152	91.02	58	85	9	1	1
Total for external causes.....	15	8.98	10	4	1		
Grand total.....	167	100.00	68	89	10	1	1

DEATHS.

Deaths occurring in the United States in the persons of those invalidated home from the Philippine Islands are credited to that station.

There were 52 deaths among the American troops, officers and enlisted men, during the year 1916, all of which were enlisted, white and colored; 32 from disease and 20 from injury, the total death rate being 4.48 per 1,000. The figures here given are taken from Table No. 29 and are for officers and enlisted men. The figures slightly differ from those given in Table No. 72 at the back of the report, which are for enlisted men only. The total death rate, officers and enlisted men, for 1915 was 2.87 per 1,000; that for disease being 1.59 and for injury 1.29 per 1,000. There were 4 deaths from drowning in 1916, as compared with 3 in 1915. There were 6 suicides in 1916, as against 6 in 1915.

Tuberculosis caused 11 deaths in 1916 and 6 in 1915; dysentery, 1 in 1916 and 2 in 1915; alcoholism, no deaths in 1916 and none in 1915.

PREVALENCE OF SPECIAL DISEASES, AMERICAN TROOPS (ENLISTED MEN).

TYPHOID FEVER.

None occurred in 1916, or in 1915 and 1914.

MALARIAL FEVERS.

The admission rate for all fevers of this class was 62.95 per 1,000, as compared with 63.12 in 1915 and 45.26 in 1914. The rates for American and native troops are shown graphically in charts X and Y.

By reference to Table No. 31 it will be seen that Camp Stotsenburg had the highest admission rate for American garrisons, 178.54 per 1,000, as compared with 121.18 in 1915. Camp Eldridge last year stood in fourth place, this year has advanced to No. 3. Fort Mills, which was No. 2 on the list in 1915, now takes the same place with a rate for 1916 of 58.85, compared with 88.48 per 1,000 in 1915. In this connection it should be noted that the posts garrisoned with native troops have considerably higher admission rates than those garrisoned with American troops.

TABLE No. 31.—*Malarial fevers, year 1916, compared with year 1915, for stations in the Philippine Islands.*

Posts.	Ratio per 1,000 of mean strength.	
	1916	1915
Principally of American troops:		
Camp Stotsenburg.....	178.54	121.18
Fort Mills.....	58.85	88.48
Camp Eldridge.....	29.99	32.44
Fort William McKinley.....	28.32	17.96
Camp McGrath.....	14.58	12.46
Cuartel de Espana.....	8.85	10.01
Regan Barracks.....	8.73	37.15
Fort Santiago and headquarters of Philippine Department.....	8.06	27.63
Principally of Philippine Scouts:		
Angur Barracks.....	87.70	57.43
Camp Nichols.....	44.25	26.79
Camp Overton.....	40.09	110.09
Ludlow Barracks.....	36.48	213.43
Pettit Barracks.....	31.58	62.90
Warwick Barracks.....	27.84	21.65
Camp John Hay.....	15.93	13.13
Fort San Pedro.....	11.83	56.38
Camp Keithley.....	10.44	43.36

UNDETERMINED FEVERS.

The admission rate for these fevers during 1916 was 5.22 per 1,000, as compared with 4.31 in 1915, 4.39 in 1914, and 5.27 in 1913. The various diagnoses under this head are:

Admission rates, Philippine Islands, American troops, and enlisted men, per 1,000 of mean strength, for undetermined fevers in 1916, compared with years 1913 to 1916, inclusive.

	1916	1915	1914	1913
Febricula.....	71	27	24	9
Fevers, simple, continued, and type undetermined.....	22	63	44	50
Total ¹	93	90	68	59
Ratio per 1,000 of mean strength.....	5.22	4.31	4.39	5.27

¹ Total for 1916 includes officers and natives.

The diagnoses given above are for officers and enlisted men, American troops, and Philippine Scouts.

SMALLPOX AND VARIOLOID.

No cases occurred in the islands.

VENEREAL DISEASES.

Notwithstanding vigorous efforts made by the authorities and the carrying out of the provisions of G. O. 31, 1913, and G. O. 45, 1915, venereal diseases still hold first place for both admission and non-effective rates. Of the total admissions for the year over one-fifth were due to venereal diseases. There were 415 admissions for syphilis, 409 for chancroid, and 1,067 for gonorrhea. Of the total noneffective rate for disease, 23.81 per 1,000 venereal diseases alone contributed a rate of 7.77 during 1916 as compared with 8.10 in 1915.

The following tabulation shows the admission rates and their causes for the enlisted personnel serving in the Philippines during 1916:

Venereal diseases, Philippine Islands (enlisted men).

	Syphilis.	Chancroid.	Gonorrhea.	Total venereal.
White troops:				
1916.....	36.48	35.64	83.78	155.90
1915.....	37.93	38.79	100.36	177.08
Colored troops:				
1916.....	28.57	31.75	186.24	246.56
1915.....	62.64	32.06	164.06	258.76
All American troops (enlisted):				
1916.....	35.94	35.32	92.14	163.30
1915.....	40.73	38.02	107.57	186.32

TABLE NO. 32.—*Venereal diseases among officers and enlisted men at posts in the Philippines having strength of more than 300 men, year 1916.*

Posts.	Admissions.		
	Total.	Ratios.	Mean strength.
Principally American troops:			
Regan Barracks.....	252	439.79	573
Camp Eldridge.....	90	244.57	368
Camp Stoenburg.....	381	185.85	2,050
Cuartel de Espana.....	137	173.20	791
Fort William McKinley.....	502	165.29	3,037
Camp McGrath.....	103	125.15	823
Fort Mills.....	369	82.26	4,486
Principally Philippine Scouts:			
Fort San Pedro.....	29	85.80	338
Warwick Barracks.....	25	53.54	467
Angur Barracks.....	46	49.19	935
Camp John Hay.....	20	35.40	555
Ludlow Barracks.....	20	21.46	933
Pettit Barracks.....	7	14.74	475
Camp Keithley.....	5	5.80	963
Camp Overton.....	2	4.45	449

CHOLERA.

Five cases of cholera reported among the American troops during 1916.

TUBERCULOSIS.

Fifty-one cases of tuberculosis occurred among American troops, making a ratio of 4.40 per 1,000. Forty-nine cases were transferred to the United States. Of the 11 deaths reported 9 occurred in the cases invalided home. In 1915 there were 76 cases of this disease, with an admission rate of 6.42 per 1,000, with 6 deaths.

BERIBERI.

No cases occurred among American troops.

DYSENTERY.

A marked increase in the incidence of this disease is noted for 1916, but 139 cases occurring with an admission rate of 12 per 1,000, as compared with 63 cases with a ratio of 5.32 in 1915. Of the 139 cases reported, 6 were bacillary, 123 entamoebic, and 10 cases unclassified. The entamoebic dysentery gives an admission rate of 10.62 per 1,000.

The noneffective rate for dysentery (all) was 0.79 per 1,000 for 1916, as compared with 0.31 for 1915.

DENGUE.

This disease, which appeared in epidemic form at seven posts in the islands in 1915, and had the second highest admission rate as well as the second highest noneffective rate, this year has dropped to 12.26 and 0.20 per 1,000 respectively, as compared with 131.31 and 1.94 per 1,000, respectively, in 1915. One hundred and forty-two cases in all were reported during the year 1916. No discharges and no deaths resulted in this number of cases.

MENTAL ALIENATION.

There were 50 admissions for mental alienation in 1916, with an admission rate of 4.32 per 1,000. In the United States the rate was 3.68 per 1,000. In 1915 the rates were 7.27 for American troops in the Philippine Islands and 3.04 in the United States

DIARRHEA AND ENTERITIS.

A marked increase over 1915 is noted in the cases of this disease, being 609 in 1916 as compared with 449 in 1915. The admission rate per 1,000 in 1916 was 52.59; in 1915 it was 37.94; in 1914, 63.10; and in 1913, 67.48.

The noneffective rate for 1916 was 0.63 as compared with 0.51 per 1,000 in 1915, being a slight improvement over the rate for 1914, when it was 0.91.

TYPHUS FEVER.

No cases of this disease occurred among the American troops. No cases were reported in the native troops from Camp Keithley, where last year three cases were reported.

INVALIDING TO THE UNITED STATES.

The disease causing the highest number of men to be invalided home were, with actual numbers: Mental alienation, 50; tuberculosis, 49; flat foot, 26; neurasthenia, 13; pleurisy, 11; and syphilis, 10.

TABLE No. 33.—*Enlisted men invalided home from the Philippine Islands, year 1916.*

Cause.	Number of cases.	Percentage of total cases.	Duty.	Discharged on certificate of disability.	Died.	Otherwise disposed of.	Remaining at end of year.
Mental alienation (defective mental development, 5; dementia praecox, 38; psychosis manic depression, 2; other forms, 5)	50	16.45	.....	31	.....	.....	19
Tuberculosis (pulmonary, 46; of organs, 3)	49	16.12	1	12	7	4	25
Flat foot.....	26	8.55	2	16	.....	.....	8
Neurasthenia.....	13	4.28	2	3	.....	.....	8
Pleurisy.....	11	3.62	6	1	.....	.....	4
Syphilis.....	10	3.29	1	6	.....	2	1
Chronic bronchitis.....	10	3.29	3	.....	.....	1	6
Gonorrhea and results.....	9	2.96	.....	6	.....	.....	3
Chronic nephritis.....	9	2.96	2	4	1	.....	2
Fracture.....	9	2.96	1	4	.....	1	3
Dysentery.....	8	2.63	3	.....	.....	.....	5
Chronic alcoholism.....	8	2.63	3	2	.....	2	1
Organic disease of the heart.....	8	2.63	.....	6	.....	.....	2
Epilepsy.....	5	1.64	3	4	.....	.....	1
Malaria.....	4	1.32	3	.....	.....	.....	1
Astigmatism.....	4	1.32	3	1	.....	.....	1
Enuresis.....	4	1.32	.....	3	.....	.....	1
Synovitis.....	4	1.32	.....	3	.....	.....	1
Secondary results of injury.....	4	1.32	.....	3	.....	.....	1
Neuritis.....	3	.99	2	.....	.....	.....	1
Other diseases of the skin.....	3	.99	.....	2	.....	.....	1
Bunion.....	3	.99	2	1	.....	.....	.....
Lacerated wound.....	3	.99	.....	3	.....	.....	.....
Cancer.....	2	.66	1	.....	1	.....	.....
Exophthalmic goiter.....	2	.66	.....	2	.....	.....	.....
Hysteria.....	2	.66	.....	1	.....	.....	1
Asthma.....	2	.66	.....	1	.....	.....	1
Chronic gastritis.....	2	.66	1	1	.....	.....	.....
Adhesions, peritoneal.....	2	.66	.....	2	.....	.....	.....
Pyelitis.....	2	.66	1	.....	.....	.....	1
Ulcer.....	2	.66	.....	.....	.....	1	1
Periostitis.....	2	.66	1	.....	.....	.....	1
Ankylosis.....	2	.66	.....	1	.....	.....	1
Hammer toe.....	2	.66	.....	2	.....	.....	.....
Congenital malformation.....	2	.66	.....	1	.....	1	.....
Undiagnosed.....	2	.66	1	.....	.....	1	.....
Sprain.....	2	.66	.....	1	.....	1	.....
Chancroidal bubo.....	1	.33	1	.....	.....	.....	.....
Locomotor ataxia.....	1	.33	.....	.....	.....	.....	1
Multiple spinal sclerosis.....	1	.33	.....	.....	.....	.....	.....
Neurosis, traumatic.....	1	.33	.....	1	.....	.....	.....
Choroiditis.....	1	.33	.....	1	.....	.....	.....
Lymphadenia.....	1	.33	1	.....	.....	.....	.....
Pneumonia.....	1	.33	.....	1	.....	.....	.....
Chronic colitis.....	1	.33	.....	.....	.....	.....	1
Inguinal hernia.....	1	.33	.....	1	.....	.....	.....
Sprue.....	1	.33	.....	1	.....	.....	.....
Cystitis.....	1	.33	.....	.....	.....	.....	1
Chronic eczema.....	1	.33	.....	.....	.....	.....	1
Psoriasis.....	1	.33	.....	.....	.....	.....	1
Arthritis.....	1	.33	.....	1	.....	.....	.....
Muscular rheumatism.....	1	.33	.....	.....	.....	.....	.....
Tenosynovitis.....	1	.33	.....	.....	.....	1	.....
Partial paralysis forearm, following in-	1	.33	.....	1	.....	.....	.....
cised wound.....	1	.33	1	.....	.....	.....	.....
Dislocation of shoulder.....	1	.33	.....	1	.....	.....	.....
Contusion.....	1	.33	.....	1	.....	.....	.....
Total cases.....	304	.....	41	132	9	15	107
Percentage of total cases.....	.....	100.00	13.49	43.42	2.96	4.98	35.20

Chart W.—Philippine Islands. American enlisted men.

[Admission, discharge, death, and noneffective rates for diseases having highest rates, year 1916.]

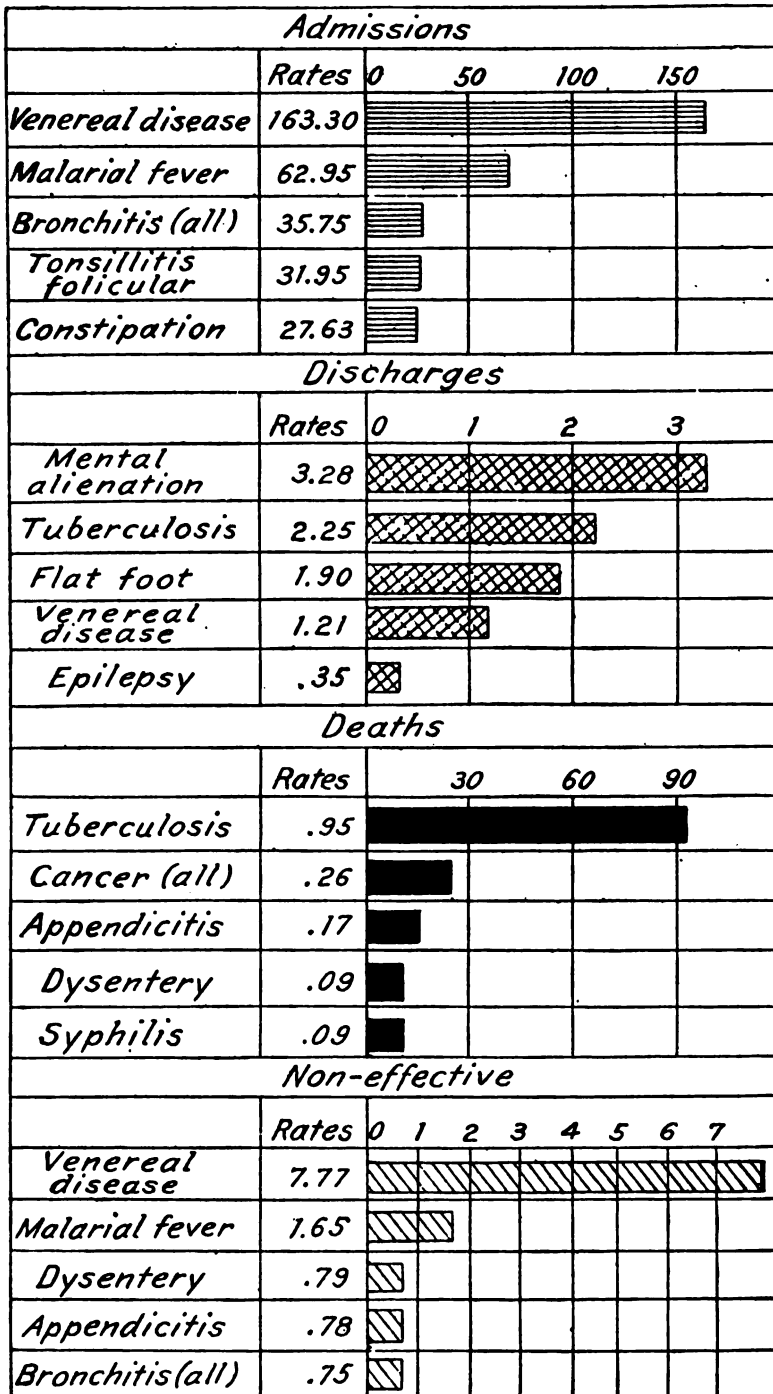
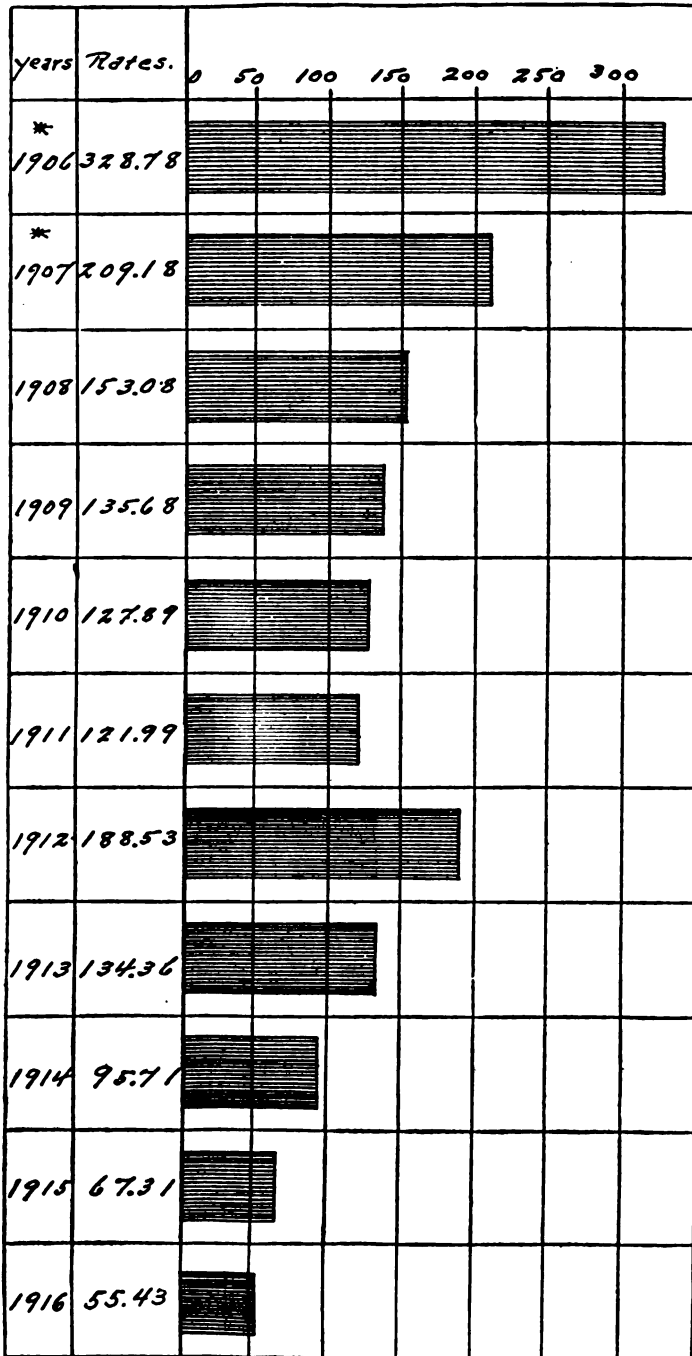


Chart X.—*Philippine Islands. Officers and American and native troops.*
 [Admission rates for malarial fevers, years 1906 to 1916.]

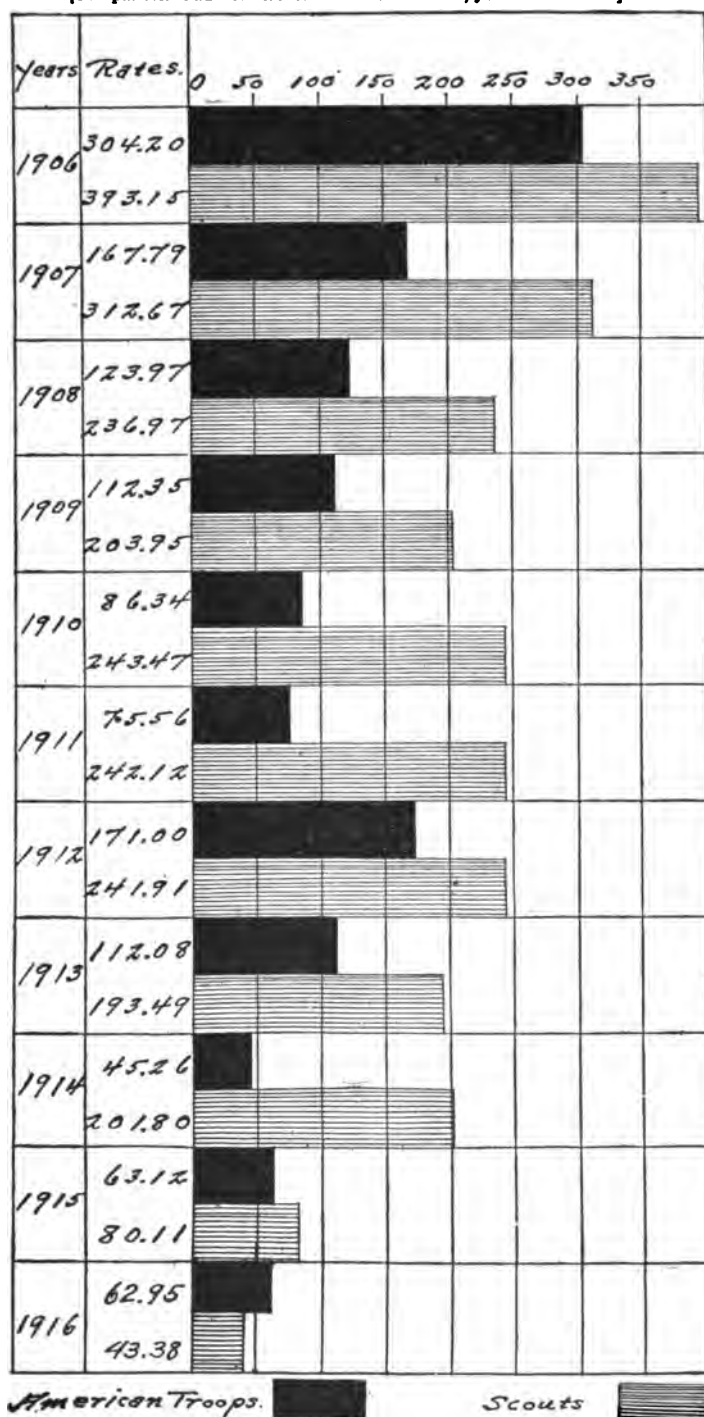


* Enlisted men

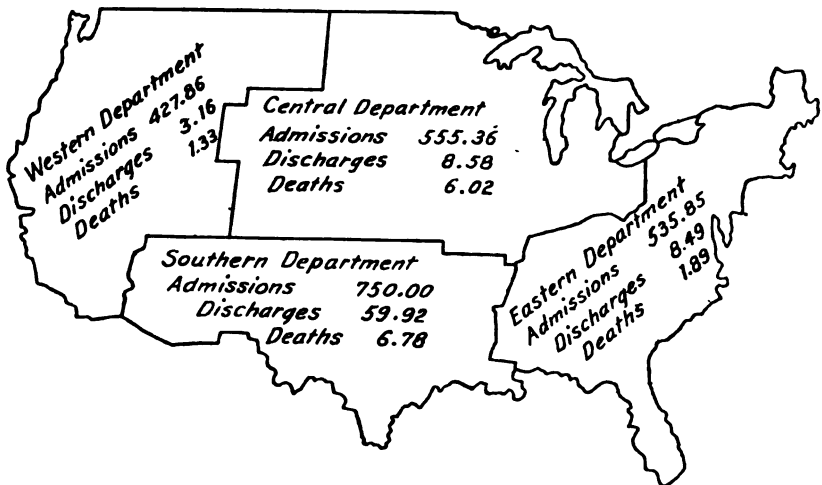
* Officers not included.

Chart Y.—*Philippine Islands. American and native enlisted men.*

[Comparison of admission rates for malarial fevers, years 1906 to 1916.]



Military departments, United States continental (excluding Alaska), showing the relative admission, discharge, and death rates for disease, officers and enlisted men, year 1915.



NOTE.—Above figures do not include general hospitals, recruit depots, independent stations, and troops on Mexican Border.

TABLE No. 94.—*Posts in the Philippines having the highest admissions and non-effective rates per 1,000 of mean strength among all those having a total strength of over 200 officers and enlisted men, year 1916.*

Posts in order of highest admission rates from all causes.	Mean strength.	Ratio per 1,000 of mean strength.										Average number of days lost.					
		Admissions to sick report.		Discharged on certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.				From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.	
		From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.		For each soldier.	For each case.	For each soldier.	For each case.
										Total.	In hospital.	Total.	In hospital.				
Principally American troops:																	
Camp Stoenburg.....	2,080	1,132.17	691.22	10.66	7.61	4.20	3.41	15.05	11.03	35.18	34.09	19.98	.....	12.88	11.36	7.20	10.55
Camp Eldridge.....	263	1,084.24	671.30	19.77	19.77	8.15	5.43	27.02	25.20	34.64	33.14	17.44	.....	12.63	11.69	6.23	9.11
Bacon Barracks.....	573	824.96	498.14	7.15	8.39	6.00	.....	14.16	5.20	22.89	21.50	9.94	.....	9.03	8.08	3.64	5.03
Fort William McKinley.....	3,087	846.77	532.53	6.13	8.17	5.60	2.93	13.13	11.13	19.86	19.45	9.75	.....	7.27	6.42	3.57	4.48
Quarrel de Espana.....	3,701	850.82	541.09	18.45	15.81	1.26	1.26	18.71	17.07	3.90	3.90	1.53	.....	1.04	1.26	5.56	1.03
Camp McGrath.....	823	708.62	470.28	18.30	16.78	.....	.....	13.50	13.78	24.96	24.33	14.73	.....	9.14	12.06	5.39	11.46
Fort Mills.....	4,486	593.21	413.51	17.96	15.19	4.01	2.67	21.97	17.86	16.72	16.56	9.86	.....	6.12	10.77	3.61	8.73
Fort Santiago.....	248	435.43	274.19	4.08	4.08	.....	.....	4.08	4.08	1.12	1.17	.78	.....	.41	.....	.29	1.04
Principally Philippine troops:																	
Fort San Pedro.....	338	894.32	597.63	12.31	6.15	.....	.....	12.31	6.15	21.18	19.86	16.18	.....	7.75	9.29	5.92	9.91
Camp John Hay.....	565	646.56	594.42	7.35	3.68	1.77	.....	9.12	3.68	20.66	27.97	22.77	.....	10.93	16.53	8.23	16.33
Agung Barracks.....	985	630.32	473.94	6.87	6.67	6.42	6.42	13.09	13.09	28.18	23.23	15.90	.....	5.31	12.67	5.82	12.26
Warwick Barracks.....	467	592.57	463.96	4.46	4.46	.....	.....	4.46	4.46	14.53	13.41	11.51	.....	3.47	5.86	4.21	5.99
Camp Overton.....	440	501.11	396.66	6.96	4.64	.....	.....	6.96	4.64	9.49	9.12	7.14	.....	3.99	6.82	3.12	6.56
Ledlow Barracks.....	823	420.13	322.96	6.68	5.67	1.07	1.07	7.75	6.64	7.99	7.74	5.79	.....	3.99	6.82	3.12	6.56
Camp Kethley.....	823	412.99	330.91	6.08	5.23	2.33	1.16	7.35	5.99	10.80	10.49	8.77	.....	3.86	9.45	3.21	9.45
Pettis Barracks.....	475	208.95	208.42	6.18	6.18	.....	.....	6.18	6.18	10.53	10.44	6.65	.....	3.86	12.92	2.43	11.08

TABLE NO. 36—*Influence of disease on enlisted American troops by arms of service, serving in the Philippine Islands, year 1916.*

Arms of service.	Mean strength.	Admitted for disease.	Discharged on certificate of disability.	Died.	Constantly non-effective.	Ratio per 1,000 of mean strength.			
						Admitted.	Discharged on certificate of disability.	Died.	Constantly non-effective.
Infantry.....	4,854	3,607	74	9	121.73	743.10	15.26	1.85	26.06
Cavalry.....	2,036	1,556	12	7	49.12	764.24	5.89	3.44	24.13
Coast Artillery.....	2,113	1,191	31	5	39.97	563.65	14.67	2.37	12.92
Field Artillery.....	878	869	12	2	33.60	1,023.92	13.67	2.26	23.27
Engineers.....	296	228	7	1	6.78	765.10	23.49	3.36	22.75
Ordnance.....	86	32	.....	.....	99	372.09	.....	.....	11.51
Signal Corps.....	177	87	.....	.....	2.12	491.63	.....	.....	11.98
Hospital Corps.....	593	364	9	6	11.63	613.83	15.13	10.12	19.59
All others.....	545	300	7	2	9.82	566.97	12.84	3.67	18.09
Total.....	11,580	8,273	152	32	275.74	714.42	13.13	2.76	23.31

Periodic prevalence of epidemic diseases and pneumonia in the Philippine Islands; also the number of gunshot cases by months.

Year.	Ty-phoid.		Para-typhoid.		Small-pox.		Measles.		Diph-theria.		Cerebro-spinal menin-gitis.		Pneu-monia.		Gun-shot wounds.	
	No. 1.		No. 2.		No. 12.		No. 14.		No. 17.		No. 108.		No. 208.		No. 396.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1916.																
January.....							1						1			1
February.....							2		2		1	1			3	
March.....							1						4		2	
April.....					6	1	2				1	1	4		1	
May.....							5						3		8	1
June.....							1				1		2		2	
July.....					1		1								2	
August.....					1										2	
September.....							2						3		3	1
October.....							1		1				3	1		
November.....													2		3	2
December.....					1		2								4	
Total.....					9	1	18		3		3	2	22	1	30	6

PHILIPPINE SCOUTS.

The health of the troops (native) in the Philippines for the year 1916 was very good, being a marked improvement over that for the year 1915. The mean strength of these troops during the year was 5,579, as compared with 5,505 during 1915.

ADMISSIONS.

During the year there were 2,690 admissions for all causes, with a case admission rate of 482.17 per 1,000, as compared with 3,159 admissions and a case admission rate of 573.84 per 1,000 for the year 1915.

The rate for disease for 1916 was 407.06 and that for injury 75.10 per 1,000, as compared with 482.65 for disease and 91.19 for injury in 1915.

The following tabulation gives the admission rates for some of the principal diseases in 1916 as compared with the year 1915:

Admission rates for some of the principal diseases among Philippine Scouts, years 1915 and 1916 compared.

	1916	1915		1916	1915
Malarial fevers.....	43.38	80.11	Dengue.....	11.12	16.79
Bronchitis.....	33.52	28.52	Dysentery.....	4.84	9.94
Diarrhea and enteritis.....	29.93	37.60	Tuberculosis (all).....	3.05	4.55
Veneral diseases.....	29.93	34.33	Ankylostomiasis.....	2.87	9.41

CONSTANTLY NONEFFECTIVE RATES.

The constantly noneffective rate for 1916 was 14.58 per 1,000, as compared with 15.68 in 1915. The rate for disease was 12.43 per 1,000 in 1916 and 13.31 in 1915, while that for external causes was 2.14 per 1,000 in 1916 and 2.37 in 1915.

The following tabulation shows the noneffective rates for the principal diseases in 1916 as compared with 1915:

Noneffective rates for some of the principal diseases among Philippine Scouts, years 1915 and 1916 compared.

	1916	1915		1916	1915
Veneral diseases.....	1.79	1.96	Diarrhea and enteritis.....	0.33	0.45
Malarial fevers.....	1.14	1.54	Dysentery.....	.22	.56
Bronchitis.....	.74	.48	Mumps.....	.22	.17
Acute abscess and cellulitis.....	.64	1.05	Rheumatism, articular.....	.16	.03
Furuncle and carbuncle.....	.42	.48	Ankylostomiasis.....	.06	.19
Tuberculosis (all).....	.36	.58			

From the comparisons afforded by these tabulations it is noted that venereal diseases, which last year (1915) showed such marked improvement, during 1916 shows a slight improvement over 1915, although still leading the list with the highest noneffective rate. This rate has been heretofore, with the exception of 1915, but a fraction of that for American troops in the Philippines, and the disastrous results attending the development of a high rate for venereal diseases would be obvious. The most marked improvement is to be noted in the admission rate for malarial fevers, being a reduction from 80.11 in 1915 over 43.38 in 1916. The rate for dengue shows a slight decrease for 1916 over that for 1915, yet the noneffectiveness from this disease is so small as to preclude its entry in the tabulation for the principal diseases. Diarrhea and enteritis show a slightly decreased admission and noneffective rate over that for 1915.

TABLE NO. 37.—*Movement of sick, Philippine Scouts, enlisted men, year 1916.*

	From all causes.		Excluding injuries, venereal diseases, vac-cinia, and alcoholism.
	Total.	In hospital.	Total.
Ratio per 1,000 of mean strength:			
Admissions to sick report.....	482.17	469.26	374.62
Discharges on certificate of disability.....	6.99	.....	6.92
Deaths.....	2.69	.....	2.33
Total losses.....	9.68	.....	8.25
Noneffective.....	14.58	14.63	10.62
Average number of days lost:			
For each soldier.....	5.24	5.24	2.89
For each case.....	11.06	11.17	10.37

DISCHARGE FOR DISABILITY.

During the year 1916 there were 39 discharges from all causes, a decrease from 1915 of 24. Of this number 36 were for disease and 3 for injury, making a discharge rate of 6.99 per 1,000. Tuberculosis, the same as last year, is the cause of the greatest number of discharges, there being 16 discharges during 1916. Mental alienation caused 4, leprosy 2, and neuritis none. In 1915 tuberculosis caused 25 discharges, mental alienation 16, and leprosy 2.

TABLE No. 38.—*Causes of discharge for disability, Philippine Scouts, year 1916.*

Causes of discharge.	Number discharged.	Percentage of discharges for disease.	In line of duty.	Not in line of duty.	
				Contracted before enlistment.	Contracted after enlistment.
Tuberculosis, pulmonary, chronic.....	16	44.44	16	.....	.....
Mental alienation (dementia precox).....	4	11.11	.....	4	.....
Leprosy.....	2	5.56	2	.....	.....
Filariasis.....	2	5.56	1	1	.....
Arthritis, gonorrheal.....	2	5.56	.....	.....	2
Optic neuritis.....	1	2.78	.....	.....	.....
Syphilis, tertiary.....	1	2.78	.....	.....	1
Iritis.....	1	2.78	1	.....	.....
Otitis media.....	1	2.78	1	.....	.....
Valvular heart disease.....	1	2.78	1	.....	.....
Inguinal hernia.....	1	2.78	1	.....	.....
Abscess of the liver.....	1	2.78	1	.....	.....
Cellulitis.....	1	2.78	1	.....	.....
Synovitis.....	1	2.78	1	.....	.....
Deafness, partial, both ears.....	1	2.78	1	.....	.....
Total for disease.....	36	100.00	28	5	3
Fracture.....	2	66.67	2	.....	.....
Sprain.....	1	33.33	1	.....	.....
Total for external causes.....	3	100.00	3	.....	.....
Total for disease.....	36	92.31	28	5	3
Total for injury.....	3	7.69	3	.....	.....
Grand total.....	39	100.00	31	5	3

DEATHS.

There were 15 deaths from all causes during 1916, with a rate of 2.69 per 1,000, and 14 with a rate of 2.54 in 1915. Tuberculosis, which causes the greatest number of deaths, for 1916 only had 1 death, while in 1915 it did not appear among the diseases given. There was 1 death from homicide and 1 from suicide.

TABLE No. 39.—*Causes of death among Philippine Scouts, year 1916.*

Causes of death.	Number of deaths.	Ratio per 1,000 of—	
		Mean strength.	Total deaths.
DISEASES.			
Smallpox.....	1	0.18	76.92
Asiatic cholera.....	1	.18	76.92
Tuberculosis.....	1	.18	76.92
Cancer.....	3	.54	230.77
Epidemic cerebrospinal meningitis.....	2	.36	153.85
Cardiac dilatation.....	1	.18	76.92
Pneumonia (lobar).....	1	.18	76.92
Congestion of lung.....	2	.36	153.85
Nephritis, acute.....	1	.18	76.92
Total for disease.....	13	2.33	1,000.00
EXTERNAL CAUSES.			
Suicide, by firearms.....	1	.18	500.00
Homicide by cutting or piercing instruments.....	1	.18	500.00
Total for external causes.....	2	.36	1,000.00
Total for disease.....	13	2.33	866.67
Total for external causes.....	2	.36	133.33
Grand total.....	15	2.69	1,000.00

SPECIAL DISEASES.

TYPHOID FEVER.

There were no cases of this disease among the Philippine Scouts.

MALARIAL FEVERS.

The admission rate for all fevers of this class was 43.38 per 1,000, as compared with 80.11 in 1915 and 201.80 in 1914. This rate is the lowest in the history of the Philippine Islands, an evidence of the persistent and vigorous antimosquito campaign that is being waged. Certain posts in the Philippines, however—notably Camp Stotsenburg, Pampanga—continue to show high admission rates for malaria. This post is not properly screened, in spite of repeated recommendations. The same statement is true of other Army posts. The relation of mosquitoes and other insects to disease incidence is now so well known that to deter the matter of complete screening of all quarters in the Army is inexcusable. "Lack of funds" or "insufficient appropriations" for this important work should no longer be accepted and the responsibility for this serious defect definitely placed.

TYPHUS FEVER.

There were no cases of this disease among native troops at Camp Keithley, Mindanao, where last year 3 cases existed among the scouts.

VENEREAL DISEASES.

These diseases furnish an admission rate of 29.93 per 1,000, as compared with 34.33 in 1915, a marked reduction. Of a total of 167 admissions, 27 were for syphilis, 13 for chancroid, and 127 for gonorrhea, as compared with 31, 17, 141, respectively, for 1915. The noneffective rate for all venereal diseases was 1.79, as compared with 1.96 per 1,000 in 1915.

SMALLPOX.

Nine cases occurred during the year.

CHOLERA.

Two cases of this disease occurred during the year, with 1 death.

TUBERCULOSIS.

There were 17 cases of this disease, with an admission rate of 3.05 per 1,000, as compared with 25 cases and an admission rate of 4.54 in 1915. There was 1 death, 16 being discharged.

DYSENTERIES.

Twenty-seven admissions for this disease during the year, of which number 13 were classed as bacillary, 10 as entamoebic, and 4 unclassified. The rate for this disease was 4.84, as compared with 9.99 for 1915. The noneffective rate was 0.22 per 1,000.

DENGUE.

Dengue, or "breakbone fever," is an acute disease of tropical and subtropical countries, characterized by severe pains in the muscles and joints and by an eruption similar to measles. The mortality is practically nil. It has been demonstrated that it is transmitted by the *Culex fatigans* species of mosquito.

Sixty-two cases of this disease occurred among the native troops, with an admission rate of 11.12 per 1,000, and a noneffective rate of 0.26. There were no deaths.

DIARRHEA AND ENTERITIS.

One hundred and sixty-seven cases occurred, making an admission rate of 29.93 per 1,000, as compared with a rate of 37.60 in 1915. The noneffective rate was 0.33.

ALCOHOLISM AND ITS RESULTS.

Six admissions are recorded for this disability, the admission rate being 1.08 per 1,000.

BERIBERI.

Two cases of this disease occurred among the Scouts during the year, the admission rate being 0.36.

UNDETERMINED FEVERS.

There were 32 cases of undetermined fevers during the year. Under this heading are included febricula, simple, continued, and other fevers of undetermined causation. The admission rate was 5.74 per 1,000, as compared with 5.81 in 1915.

The following table exhibits the various surgical operations performed on the Philippine Scouts during the year:

TABLE No. 40.—*Surgical operations performed on Philippine Scouts during the calendar year 1916.*

Operation.	Disease or injury.	Result.		Anesthetic.				
		Cases.	Success-ful.	Died.	Chloro- form.	Ether.	Local.	None.
EYE.								
Transplantation, 1; resection of ptery- gium and suture, 1.	Pterygium.....	2	2				2	...
Incision curetment and cauterization.	Sebaceous cyst.....	1	1				1	...
EAR.								
Scarification and suture.....	Laceration and perforation of ear..	14	14				14	...
MOUTH AND PHARYNX.								
Tonsillectomy.....	Hypertrophy of tonsil.....	1	1				1	...
Incision and drainage.....	Peritonsillar abscess.....	2	2				1	1
NECK AND THORAX.								
Paracentesis.....	Pleurisy.....	2	2				2	...
Aspiration, 2; thoracostomy and drainage, 1.	Empyema.....	3	3			1	1	1
Dissection.....	Discharging sinus chest wall.....	1	1			1		...
ABDOMEN.								
Bassini's operation.....	Inguinal hernia.....	3	3			3		...
Appendectomy.....	Appendicitis.....	4	4			4		...
Enterectomy with end to end anas- tomosis.	Fistula following ruptured ap- pendix.	1	1			1		...
Incision and drainage.....	Cyst, pancreatic.....	1	1			1		...
Incision into cavity and removal of stone.	After operation for cyst, pancreatic.	1	1			1		...
Laparotomy exploratory.....	Lympho-sarcoma of liver.....	1		1		1		...
Do.....	Abdominal tuberculosis.....	1	1			1		...
ANUS AND RECTUM.								
Incision and drainage.....	Ichiorectal abscess.....	1	1				1	...
Partial division of sphincter.....	Fistula in ano.....	1	1			1		...
Excision and suture, 1; clamp and ligation, 1; ligation and excision, 4.	Hemorrhoids.....	6	6			6	1	...
Excision.....	Papillomata, circumanal.....	1	1			1		...
GENITO-URINARY SYSTEM.								
Epididymotomy.....	Epididymitis.....	1	1		1			...
Andrew's operation, 1; excision of sac, 1.	Hydrocele.....	2	2			2		...
Incision and drainage.....	Abcess, periurethral.....	1	1				1	...
Excision.....	Cyst, meatus.....	1	1				1	...
Circumcision.....	Phimosis.....	2	2				2	...
Dissection.....	Adherent prepuce.....	1	1				1	...
VASCULAR SYSTEM.								
Ligation and excision.....	Varicose veins.....	1	1			1		...
SKIN AND CELLULAR TISSUE.								
Incision and curetment, 1; incision and drainage, 57.	Abcess.....	58	58				3	36
Incision and drainage.....	Carbuncle.....	5	5				4	1
Incision and drainage, 20; incision and curetment, 1.	Cellulitis.....	21	21		1	1	19	
Excision, 2; partial excision, 4; avul- sion, 1.	Ingrowing toenails.....	7	7				6	1
Incision and cauterization.....	Painful scar.....	1	1					1
LYMPHATIC SYSTEM.								
Excision of gland.....	Lymphadenitis (filarial).....	1	1			1		...
Incision and drainage.....	Adenitis venereal.....	4	4				3	1
Do.....	Adenitis, nonvenereal.....	10	10				7	3

TABLE No. 40.—*Surgical operations performed on Philippine Scouts during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.		Anesthetic.			
			Success-ful.	Died.	Chloro- form.	Ether.	Local.	None.
	MUSCLE, TENDONS, LIGAMENTS, FASCIA, AND BURSAE.							
Incision and drainage.....	Myositis.....	2	2			1	1	
Tenorrhaphy.....	Severed tendon.....	1	1					1
Aspiration and partial excision.....	Ganglion.....	1	1				1	
	BONES.							
Transplantation of bone from ster- num.....	Defect of skull from old fracture....	1	1			1		
Resection articular end of bone and extraction of bullet.....	Gunshot wound, shattering lower end of humerus.....	1	1			1		
Incision and drainage, and posterior splint.....	Fracture, compound tibia, and fibula.....	1	1			1		
Fragments freshened and wired.....	Nonunion, compound fracture of tibia.....	1	1			1		
Removal of detached spicula.....	Gunshot wound, metatarsal.....	1	1			1		
Incision and curetment.....	Osteomyelitis, phalanx toe.....	1	1			1		
	JOINTS.							
Incision and drainage.....	Synovitis, shoulder.....	1	1			1		
Do.....	Arthritis, site not stated.....	1	1				1	
Breaking of adhesions.....	Adhesions following incision at shoulder joint.....	1	1			1		
	AMPUTATIONS.							
Amputation of finger.....	Contusion and laceration.....	1	1				1	
Do.....	Gunshot wound.....	2	2			1	1	
Amputation of toe.....	Gangrene following lacerated wound.....	1	1			1		
	TUMORS.							
Excision.....	Fibroma.....	4	4			1	3	
Do.....	Lipoma.....	1	1				1	
Do.....	Sebaceous c/st.....	3	3				3	
	MISCELLANEOUS OPERATIONS.							
Incision and drainage.....	Infected wound.....	3	3				3	
Incision and suture.....	Lacerated wound.....	6	6					6
	Incised wound.....	3	3					3
	Punctured wound.....	1	1					1
Total number of cases.....		201	200	1	2	41	119	30

PREVALENCE OF DISEASES, BY RACES.

With the exceptions of diarrhea and enteritis, furunculosis, malaria, conjunctivitis, trichophytosis, dysentery, and intestinal parasites, the rates for the Philippine Scouts were all lower than for either the white or colored American troops. It should be borne in mind that the native troops are serving in their own country under conditions natural to them, to which American troops are not accustomed.

The rates for the American white and colored troops and scouts are compared in the following tabulation:

Comparison of general rates for American white and colored troops and scouts, year 1916.

	White.	Colored.	Scouts.
Admission rate.....	749.59	713.90	482.17
Noneffective rate.....	39.17	33.03	14.58
Death rate.....	5.06	7.73	2.69
Discharge rate.....	16.19	22.12	6.99

TABLE NO. 42.—*Important diseases by races, Philippine Islands, year 1916.*

Diseases.	Admission rates.					
	White troops.		Colored troops.		Philippine Scouts.	
	1916	1915	1916	1915	1916	1915
Venereal.....	155.91	105.81	246.56	136.30	29.94	34.33
Malaria.....	60.74	15.90	87.83	7.75	43.38	53.77
Diarrhea and enteritis.....	49.65	31.87	85.72	26.19	29.93	37.60
Bronchitis (all).....	37.06	35.06	21.16	36.87	33.52	28.52
Tonsillitis (all).....	29.62	67.24	58.20	32.91	5.02	7.08
Alcoholism.....	16.27	14.34	9.52	6.89	1.08	.18
Appendicitis.....	13.45	8.84	7.41	7.24	2.15	.73
Dengue.....	12.88	14.06	5.29	68.75	11.12	16.71
Dysentery.....	11.94	2.06	12.70	.52	4.84	9.99
Influenza.....	11.38	35.06	.....	22.40	3.76	1.63
Furunculosis.....	9.22	17.01	13.76	8.62	18.10	19.62
Hemorrhoids.....	7.06	5.53	15.87	10.86	1.25	.18
Conjunctivitis.....	4.33	4.04	4.23	5.51	13.08	12.17
Articular rheumatism (acute and chronic).....	4.23	4.94	.....	3.27	3.41	.54
Trichophytosis.....	4.14	3.98	26.46	3.62	8.07	9.08
Intestinal parasites.....	2.35	1.05	1.06	.69	1.43	5.99
Tuberculosis.....	.85	3.44	3.17	4.65	3.05	4.54
Pneumonia (lobar).....	.66	2.34	.....	3.45	2.69	2.00

SANITATION IN THE PHILIPPINE ISLANDS.

The department surgeon, Philippine Department, reports as follows:

The admission rate was 7.75 per 1,000 of strength as against 9.31 in 1915; the non-effective rate was 24.33 as against 25.8, and this decrease in both the admission rate and constantly noneffective was due to dengue, venereal diseases, and malaria. The admission rate for dengue was reduced from 90.1 in 1915 to 11.3; venereal diseases from 184.7 to 160.5, and malaria from 65.6 to 54.8 per 1,000.

PREVALENCE OF SPECIAL DISEASES.

VENEREAL.

There were 3,079 cases of venereal diseases admitted, of which 2,274 were new cases and 805 were readmissions of those previously admitted for the same disease.

While venereal disease continues to be the most frequent cause of admission on sick report, it will be noticed that the admission rate per 1,000 has made a steady decline (with exception of 1913), as shown by the following figures:

1911.....	231.7	1914.....	167.4
1912.....	202.1	1915.....	184.7
1913.....	124.1	1916.....	160.5

The admission rate per 1,000 for this disease at the principal American posts was as follows:

Admission rates per 1,000.

Station.	1915	1916	Station.	1915	1916
Tientsin, China.....	596.4	378.6	Camp Stotsenburg.....	238.6	230.3
Regan Barracks.....	434.5	563.3	Cuartel de Espana.....	226.2	201.8
Camp Eldridge.....	369.9	325.1	Fort William McKinley.....	203.0	197.8
Camp McGrath.....	246.9	168.9	Fort Mills.....	124.0	99.2

The question of the control of venereal disease apparently depends to a large extent on the zeal with which the authorities, both line and medical, enforce the regulations relating to these diseases. It is believed that when a command has an excessive venereal record that it will be found that in other respects discipline is lacking.

The extent to which venereal disease may invade a command is shown by the report of the surgeon at Camp Eldridge, in which it is shown that when a battalion of the Thirty-first Infantry reported there from duty at Regan Barracks, 120 of the command of 382 men had venereal disease, and after a syphilitic survey, 108 of the command showed syphilis.

Since this battalion has been at Camp Eldridge, the number of new cases of venereal disease has been very small.

MALARIA.

The malaria situation continues to show great improvement, the admission rate per 1,000 being 54.8 per 1,000 against 65.6 per 1,000 in 1915, 93.9 in 1914, 125.4 in 1913, and 188 in 1912. The rate per 1,000 for 1916 was the lowest since American occupation.

Admission rates per 1,000.

Station.	1915	1916	Station.	1915	1916
Ludlow Barracks.....	220.4	38.6	Camp Eldridge.....	27.5	27.3
Camp Stotsenburg.....	135.4	186.9	Warwick Barracks.....	25.9	29.9
Fort Mills.....	88.9	61.3	China Expedition.....	24.3	9.6
Pettit Barracks.....	58.9	40.2	Fort William McKinley.....	17.5	29.9
Augur Barracks.....	57.5	96.3	Camp John Hay.....	13.1	14.2
Fort San Pedro.....	56.4	11.8	Camp McGrath.....	12.4	15.8
Camp Kethley.....	41.3	12.8	Cuartel de Espana.....	11.4	8.9
Began Barracks.....	30.3	15.3			

The increase at Augur Barracks was largely due to disease being epidemic at that station during the month of February, 34 cases (total cases for the year, 90) being reported in that month.

Malaria became epidemic at Camp Stotsenburg in March and December, there being 77 and 54 cases, respectively, a total of 131. Total cases for the year from this station were 383.

These rates can be improved, and will be, as all the posts are screened. This work of screening is very gradually being done by the Quartermaster Department. The post of Camp Stotsenburg is only partially screened at present. Augur Barracks, at Jolo, another malarial station, is only two-thirds screened.

Antimalarial measures, which are under the direct control of the Medical Department, are very carefully carried out at all posts.

DENGUE.

The admission rate for this disease has been reduced from 90.1 in 1915 to 11.3 per 1,000. There was an actual reduction of 1,523 cases. Total of cases admitted in 1915 was 1,740; in 1916, 217.

DYSENTERY, AMEBIC AND BACILLARY.

The total admissions in the department for 1916 were 170 as against 122 for 1915, an increase of 48 cases or 8.8 per 1,000 as against 6.3 for 1915.

This is largely due to the great increase in admissions for this disease at Camp McGrath, where the disease has been endemic during the past year, there being an actual increase of 36 admissions over the figures for 1915 (41 in 1916 against 5 for 1915), all entamebic.

DIPHTHERIA.

Only one case reported during the year, an American white at Fort Mills during October.

Three cases of this disease occurred in the family of an officer residing in Manila during August (wife and two small children), which were isolated at the department hospital. All made uneventful recovery.

Two cases of carriers (both colored) were isolated under canvas at Camp Stotsenburg during February, one of whom was returned to duty the following month negative for diphtheria bacilli.

The other case (S. & W. card 28070, Camp Stotsenburg, February, 1916) persists in giving a positive reaction for diphtheria bacilli, and shows no tendency to improve. It is believed that the soldier is a permanent carrier and that the organism has its habitat in the frontal sinus. Patient was transferred on December 7 to department hospital, Manila, by motor ambulance, where he remains on the last day of the year.

SMALLPOX.

Nine cases, with one death, all among Philippine Scouts at Augur Barracks, at which station this disease was epidemic from March to September, there being 53 cases among the civilian population admitted to hospital during this period with 14 deaths.

TYPHOID.

No case reported during the year.

PARATYPHOID.

One case occurred (American) in China expedition during October.

LEPROSY.

Two cases were discovered among the Philippine Scouts at Fort Mills. Both were discharged on certificate of disability and turned over to the civil authorities.

BERIBERI.

There were two cases of beriberi; one at Augur Barracks and one at Pettit Barracks. Both were Philippine Scouts.

SCARLET FEVER.

Nine cases, with one death, occurred during the year. All among American troops in China.

CEREBROSPINAL MENINGITIS.

Three cases appeared among native troops with two deaths, one at Fort Mills during February, and two at Augur Barracks during April and June. This disease has existed in epidemic form at Jolo in the vicinity of Augur Barracks among the native population.

CHOLERA.

Eight cases of cholera occurred, 5 among Americans and 3 among Philippine Scouts. Only 1 death occurred, which was a native soldier who had contracted the disease while on furlough in Manila from Camp Nichols. Patient was not treated in military hospital. Cases occurred at the following stations: Camp Keithley, 1 scout in April; Fort William McKinley, 1 American in July, 2 Americans in August, and 1 American in September; Cuartel de Espana (from Estado Mayor), 1 American in September; Camp Nichols, 1 scout in October, and Fort Mills, 1 scout in October.

Cholera has been quite prevalent during the year among the civil population throughout the entire archipelago, particularly so in Manila and immediate vicinity, where cholera is believed to be due to a great number of cholera carriers who are usually harmless, but who become active sources of infection following errors in diet. The elimination of carriers from employees engaged in handling of water and food supplies probably in some measure at least, accounts for the very few cases occurring in nearby garrisons.

Several cases occurred among the civilian native population of Fort Mills and Fort William McKinley.

SANITATION AND CONDITIONS AT INDIVIDUAL POSTS.

AUGUR BARRACKS, JOLO.

Smallpox was epidemic from March 16 to September 30, and appeared again during December. The surgeon reports:

"In order to understand the difficulty of controlling the epidemic it is necessary to state that there were 570 women and children (scouts' and quartermaster employees' families), and 120 quartermaster employees (packers and native employees) of whom more than half were living off the reservation in the town of Jolo and the adjacent barrios of Tulay and San Ramundo. Further, to realize the opposition to vaccination, particularly among the families of the two Moro companies, they in many instances were concealed or sent away to return only when sick with smallpox, or knowing that they had been exposed. The epidemic started in the civil population; the date is not known. The first case requiring military care was a quartermaster employee (native) taken sick on March 16, 1916.

"A smallpox camp was established and all cases isolated; daily visits to all known members of scouts' families, and to organizations in which a case occurred were made. Vaccination was employed and revaccination to even the sixth time in some instances. There were all grades of the disease seen, from the mildest to the most severe confluent hæmorrhagic form which caused all of the deaths—except one child convalescent from a mild attack who died suddenly without cause; no autopsy. During the period noted 15 deaths occurred of which only one was a soldier."

The surgeon concludes as follows:

"As a result of the difficulties encountered in dealing with these civilian elements so scattered throughout the towns, they have been brought into the reservation and will be comparatively easily controlled hereafter should any epidemic diseases appear."

He remarks as follows with reference to venereal diseases:

"Venereal diseases have at all times been prevalent but to no great extent. They have been treated in hospital during early stages (open lesions in syphilis, and until discharge has greatly lessened in gonorrhea), continuing treatment under restriction after return to duty. The usual prophylaxis has been employed to prevent infection and instruction given frequently in these subjects by medical officers."

This station shows an increase in admission rate for malaria, all due to diseases becoming epidemic during month of February after field service.

CAMP ELDRIDGE, LAGUNA.

There have been very few cases of malaria, the admission rate being slightly lower than that for 1915.

The venereal rate for this station, while lower than that for 1915 (369.9 per 1,000 against 325.1 in 1916), will undoubtedly show a large increase for the coming year, due to this station inheriting the first battalion of the Thirty-first Infantry on December 29, 1916, from Regan Barracks. The surgeon remarks as follows:

"Until the arrival of the first battalion of the Thirty-first Infantry at this post on December 29, 1916, there were no prevailing diseases. In this battalion there are, in a total enlisted strength of 382 men, 150 cases of active venereal disease under treatment; most of these men have been doing garrison duty, but many are at present physically incapacitated for field service. The number of each variety of venereal disease at present under observation and treatment is as follows: Syphilis, 80 cases; chancroids (unhealed), 46 cases; gonorrhea, acute and chronic, 15 cases; venereal warts, 4 cases; buboes, suppurative, 5 cases; total, 150."

The special steps taken to control venereal disease as reported by the surgeon are:

- "1. Treatment in hospital of all infectious syphilitic and acute gonorrheal cases.
- "2. Restriction to limits of post of all other venereal diseases during infectious stage.
- "3. Maintenance of an excellent venereal prophylactic station, very accessible to houses of prostitution and open at all hours.
- "4. Lectures by medical officers to command on personal sanitation.
- "5. The investigation of the origin of all cases of venereal disease and subsequent isolation of the infected woman.

"6. Institution of semimonthly inspection of all prostitutes in Los Banos by medical officers during the latter part of November, 1916. Prior to this a weekly inspection of these women was made by the provincial health officer. He now makes two inspections monthly.

"7. Semimonthly physical inspection of the entire command by medical officers.

"8. At present all cases of infectious venereal disease not in hospital are restricted to the limits of post, required to report to the noncommissioned officer in charge of quarters in each company every two hours. The military police on duty in the town of Los Banos are furnished with a list of all those so restricted and have instructions from the post commander to arrest any such men found without the limits of the post."

CAMP JOHN HAY, BENGUET.

There are no malaria-carrying mosquitoes in the vicinity of this post. Only eight cases reported during the year; all imported.

Venereal diseases are scarce, notwithstanding one company of American troops has been stationed at this post since February.

The surgeon reports:

"Venereal prophylaxis installed in hospital given any hour of day or night by medical department attendant, who is carefully instructed in the administration of same. Bimonthly physical inspections of the command, etc."

CAMP KEITHLEY, MINDANAO.

The surgeon reports all existing orders and regulations for venereal disease are being complied with. This disease not sufficiently prevalent to warrant special steps, only seven cases during the year.

The malaria rate was again reduced, the rate per 1,000 for 1916 being 12.8 against 41.3 in 1915. The surgeon reports:

"For control of malaria all cases were thoroughly treated before final discharge, and all requirements on malarial register complied with; blood examinations made in all suspicious cases; use of mosquito bars by all troops, and breeding places of mosquitoes drained or oiled."

Chicken pox was prevalent in January, 12 cases being reported.

There has been an occasional case of dengue throughout the year, but not considered epidemic.

Mosquitoes are fairly numerous coming from nearby swamps bordering Lake Lanao.

In regard to sanitary defects the surgeon reports as follows:

"As mentioned under this heading in last report, the principal sanitary defect has been the lack of quarters available for the families of enlisted men, Philippine Scouts, which has resulted in overcrowding in many instances."

CAMP M'GRATH, BATANGAS.

The prevailing diseases were venereal and dysentery contracted in adjacent town of Batangas.

The physical examination of the command, also the prostitutes, and isolation of infected cases of either, has been a great factor in again showing a material reduction in the venereal rate, which was reduced from 246.9 per 1,000 in 1915 to 168.9 per 1,000 in 1916.

With regard to dysentery, the surgeon reports as follows:

"Investigation shows that the infection is brought into the garrison from the town of Batangas or other outside sources, in evidence of which it is stated that the only case of dysentery appearing in any of the officers' or noncommissioned officers' families is that of a native servant admitted in September, 1916.

"The amoebic incidence is not confined to one organization, nor does it seem to have a seasonal variation. This would seem to indicate that the etiological factors were constantly present, but the entire command was not exposed, which opinion is further strengthened by the absence of infection of the officers and noncommissioned officers, and their wives and children, who have the same water and food supply as the rest of the garrison."

A carrier was detected in one company in the person of a cook. This company had more admissions than any other for 1916.

Bacteriological examinations for amoebæ will be made at intervals.

CAMP STOTSENBURG, PAMPANGA.

Malaria and venereal continue to be the prevailing diseases.

With reference to malaria the surgeon reports as follows:

"This disease has at all times flourished at this post, and until the so-called scout post is abandoned the malaria incidence will be excessive. In spite of the active anti-mosquito measures constantly practiced, the malaria rate has remained high, at one time reaching in the scout post 99 per 1,000 per month (March, 1916). Screening of the barracks and quarters, now under way but not completed, will tend to lower the rate, but it will probably then remain excessively high. This is believed to be due to the large number of malaria carriers among the native population at Sapang Bato and over whom the post authorities can exercise no control. The quartermaster corral is situated directly across the creek from the barrio, and adjoining this corral there is a continuous line of cover through adjacent buildings, through which malaria-infected mosquitoes from Sapang Bato may travel to the barracks occupied by the first battalion Second Field Artillery. The records of this hospital show that the occupants of these barracks have suffered continuously and excessively from malaria, and its continued high rate may be expected so long as the scout post continues to occupy its present location.

"Active antimosquito warfare is constantly waged. This includes searching for water and moist spots, petrolization, the cutting and burning of grass and brush for a considerable distance about post, the systematic examination of all natives before authorizing their employment on post, the careful isolation and hospital treatment of all malaria cases until they cease to be carriers."

Screening has now been authorized on all barracks and quarters and is well under way.

The venereal rate for this station is a trifle lower than for the previous year. This problem is partially solved at this station by the toleration of a so-called model barrio, situated about 1 mile south of the post, which is satisfactorily operated.

The Banban River supply is now being used for all purposes. Drinking water is boiled or filtered before use. A new artesian well has been bored and is awaiting installation of machinery.

Plans and specifications are now being prepared for the construction of a new hospital.

PORT MILLS, CORREGIDOR, AND SUBSTATIONS.

Malaria and venereal diseases have been prevalent during the year among the command, and malaria, skin, and eye diseases and intestinal parasites among the native population. There have occurred during the year two cases of leprosy among Philippine Scouts (both discharged on surgeon's certificate of disability and turned over to civil authorities) and one case each of cerebrospinal meningitis (Philippine Scout), cholera (Philippine Scout), and diphtheria (American); also three cases of cholera among the native civilians.

There has been a decided decrease in both the venereal and malarial rate. The surgeon reports as follows:

"In the case of venereal diseases, in addition to the measures required by regulations, steps have been taken as follows:

"Weekly examination of all known prostitutes in the vicinity. In the case of malaria, aside from the usual preventative measures, i. e., screening of buildings, use of mosquito nets, occasional use of quinine prophylactic, etc., two important measures are now under way—the clearing of underbrush and the routine survey of all natives coming on or living on the island for blood infections. Native gamete carriers are as a rule deported. Others are controlled by treatment or deported."

It is interesting to note that while this station had a mean strength of 4,487 during the year (not to speak of a native barrio with a population of about 5,000, situated in and around the island's port of entry) the command shows a greater continued movement for betterment than any post in the department, the average daily sick for the year being 76; constantly noneffective per 1,000, 16; venereal rate reduced from 124 per 1,000 in 1915 to 99.2 and malarial rate from 88.9 per 1,000 in 1915 to 61.3 in 1916.

PORT SAN PEDRO, ILOILO.

The surgeon reports skin, respiratory, and venereal diseases as prevailing during the year.

Malarial rate has shown a decided reduction over the figures for 1915, being only 11.8 per 1,000 against 56.4 for 1915.

The surgeon states:

"All cases of venereal disease are treated at hospital. Chancroid cases returned to duty when completely cured. Gonorrheal cases retained to hospital until discharge ceases, when they are returned to duty but kept on venereal list and required to report daily for observation and treatment until cured. All cases of syphilis, when danger of infecting others exists, are retained in hospital for observation and treatment."

PORT WILLIAM M'KINLEY, RIZAL.

There has been nothing of interest except the six cases of Asiatic cholera, all of which were contracted outside of the post. The cases of malaria which occurred have mostly been of extraneous origin. There were a number of cases among the enlisted personnel who were on topographical work near Aparri.

The sewage-disposal system which had given a great deal of trouble has been remedied by the installation of a new Imhoff septic tank, which seems to work satisfactorily in every way.

LUDLOW BARRACKS, MINDANAO.

There has been no disease that could be called prevalent during the year. The admission rate per 1,000 for all disease was 438.

Malaria, which in former years caused the greatest number of admissions, has practically been eliminated, as shown by the admission rates of 791.3, 220.4, and 38.6 per 1,000 for the years 1914, 1915, and 1916.

The surgeon reports the same antimosquito measures in use as reported in the last annual report from this office, which have proven entirely satisfactory.

The usual measures employed in combating venereal diseases have continued effective, and the rate per 1,000 for this class of disease was 24.6.

The following report is made regarding sanitation at the post:

"Garbage, which prior to May, 1916, was dumped on the ground in the immediate vicinity of the post and an attempt made to burn it, is now being dumped into the sea.

"Recommendations that the old guardhouse, which is located in the remains of an old Spanish redoubt and is unfit for occupancy, be rebuilt or a new one constructed

have been made, and money has already been asked for this purpose. It is expected that a new one will be built in the near future.

"The old system of disposal of human excreta has been replaced by water-flushed closets."

CITY OF MANILA.

The following stations are located within the city limits: Cuartel de Espana, Cuartel de Infanteria, department hospital, Estado Mayor, Fort Santiago, medical supply depot, Manila ordnance depot, and quartermaster depot.

Cuartel de Espana, which normally had a garrison of one battalion of infantry, plus regimental headquarters, now has two battalions, due to moving of white troops from Camp Eldridge.

Cuartel de Infanteria has one company of Signal Corps.

Estado Mayor consists of two companies of Infantry.

Fort Santiago has been increased to two companies of Infantry as a headquarters guard.

The regular corps detachments are stationed at the medical supply depot, the ordnance depot, and the quartermaster depot.

CUARTEL DE ESPANA.

Tonsillitis was common during early part of the rainy season. This was probably due to overcrowding during alterations in barracks at a time when infectious diseases of the upper air passages were common in Manila.

A large number of cases are undergoing treatment for dhobie itch and an impetigo-like eruption which as a rule readily responds to treatment and which does not incapacitate for full duty.

The venereal diseases have been in fairly large numbers, particularly because the location of the post in a city with opportunities for infection, and because the regiment is made up largely of soldiers in their first enlistment. The rate, however, is lower than for the past two years, being 201.8 per 1,000 against 226.2 for 1915, and 203.4 for 1914.

The new artesian well which was completed the latter part of 1915, the water of which was intended for the use of the entire military population of Manila, was finally abandoned as a frequent bacteriological examination of the water showed a contamination which finally led to the discontinuance of the water for drinking purposes. Since April all water for drinking and cooking purposes has been distilled by the quartermaster distilling plant.

Disinfection of swimming pool with copper sulphate was instituted early in the year, and has been continued since. There have been no cases of infection traceable to the use of the pool.

The present sanitary condition of the post is good except for the unavoidable dust and disturbance due to building construction which will probably be completed early in the year.

FORT SANTIAGO.

There have been no prevailing diseases during the year.

A large civilian population of nearly 3,000, which includes the employees and families of civilians employed in and around department headquarters, depot quartermaster and land transport corral, are taken care of at this dispensary, and the surgeon reports as follows:

"In order to detect communicable diseases, monthly physical inspections of all civilians employed have been made. In this way several active cases of tuberculosis and syphilis have been eliminated. In order to protect against cholera and other intestinal diseases, the various sources of drinking water are checked up by frequent bacteriological examinations, and all civilians concerned in the handling of drinking water or food products are examined to determine their freedom from cholera or other intestinal infections."

DEPARTMENT HOSPITAL.

There were 1,143 cases transferred to the department hospital for treatment, namely, 1,052 American white, 34 American colored, and 57 Philippine Scouts. An average of 102 patients was in hospital during the year, of which enlisted men and officers was 79 and civilians 23.

Considering age and numerous repairs, the buildings are in fair condition. The sewage and drainage systems are defective in rainy weather, but could not be improved without considerable expense.

The artesian well commenced in the last part of 1915 was finally completed on December 11, 1916, and is now being used. The bacteriological examinations made from this well, extending over a period of two weeks, specimens being obtained daily from the main of the well itself, and from the storage tank, show the water from the main to contain an average of 300 colonies per cubic centimeter, and the water from the tank to contain an average of 1,200 colonies per cubic centimeter. Presumptive tests for the presence of *B. coli* were negative during all examinations. Practically no difference was found to exist chemically between the water from the main and tank.

The bacterial work was done at the department laboratory by a first lieutenant, Medical Corps.

PETITT BARRACKS, MINDANAO.

There have been no prevailing diseases at the post. The admission rate per 1,000 continues to be the lowest in the department, being 316 against 427 for 1915. In the town of Zamboanga there have been some cases of typhoid fever, but no cases appeared among the command.

Only 19 cases of malaria and 8 cases of venereal disease (1 of which was new) were reported during the year. The mean strength of the command was 472. The surgeon reports as follows:

"For control of venereal disease, existing War Department orders are carefully carried out. Malaria cases are kept under treatment for 21 days following discharge from hospital, and four months later 21 days' treatment is continued."

Regarding sanitation it is stated:

"The barrio of Santa Barbara adjoining the post has been put under the joint control of the civil and military authorities and its condition much improved. A sanitary latrine was built by the local health authorities, and the daily police of the barrio is under the direction of a sergeant of the line who reports daily to the surgeon. This scheme has worked out very satisfactorily, and great credit is due Gov. Frank Carpenter for his hearty cooperation in improving conditions immediately adjoining the post."

REGAN BARRACKS, ALBAY.

The venereal rate at this station, which was second only to China during the last year, has again increased and now is the highest in the department, being 593.3 per 1,000 against 434.5 for 1915.

The high rate reported by the surgeon is due to lack of cooperation on the part of the civil authorities in the control of prostitutes.

Special steps in controlling venereal diseases were:

"The venereal cases are restricted to the post and if they have failed to take the prophylaxis, are brought to trial by summary court-martial. Most of the cases are taken in the hospital for some time, and during this period lose their pay, with the idea of impressing the seriousness of the disease. An effort was made to cooperate with the health authorities of the Province, with a view of having all infected prostitutes confined until cured, but it has failed. The examination and laboratory work of the prostitutes was done by the surgeon free of charge. The health authorities claimed, after trial, that they, the prostitutes, could not be confined without due process of law, and it is almost impossible to get any one to swear out a warrant."

This condition has been remedied by the removal of the American troops (the first battalion of the Thirty-first Infantry) to Camp Eldridge, Laguna, during December, 1916, where conditions are much better.

The malaria rate is practically nil, only 13 cases appearing during the year, giving an admission rate of 15.3 per 1,000 against 30.3 in 1915. The usual antimosquito measures are carried out.

WARWICK BARRACKS, CEBU.

There was no disease present that could be called prevalent. Dengue, which had been endemic, has almost been entirely eliminated, only 30 cases appearing during the year.

But little venereal disease has occurred at this post. The prescribed semimonthly physical examination of enlisted men is performed, and every reasonable facility is given which might encourage the faithful use of the prophylactic system.

Malaria is not prevalent at this station, and except for imported cases, seems to be nonexistent in Cebu. The usual antimosquito measures are, however, employed.

TIENTSIN, CHINA, AND SUBPOSTS OF CHINA EXPEDITION.

Venereal disease continues to be the prevailing disease, although it is interesting to note that the rate per 1,000 has been cut almost in two. The rate per 1,000 for 1916 was 378 against 596.4 in 1915. The surgeon attributes this great improvement to more careful prophylaxis, and the continuance in hospital of all cases until no longer infective. Considering local conditions, the results obtained are excellent.

The malaria rate has been very low, only 9.6 per 1,000 against 24.3 for 1915.

Pneumonia has been extremely fatal, but the cases have occurred in drinkers.

The troops are quartered in buildings constructed for commercial purposes, and these are not satisfactory, being crowded and not well ventilated. The removal of night soil and urine, which is done by coolies, is only a makeshift arrangement and leaves much to be desired.

New buildings, to be rented for barracks and hospital, are now in course of construction, and will in a measure correct some of the defects of the present arrangement.

The health of the command has shown a great improvement during the past year, the admission rate being reduced to 979 per 1,000 from 1,533 for 1915.

In conclusion, the department surgeon desires to say that the health of troops stationed in the Philippine Department has shown a decided improvement over that of previous years. The gradual abandonment of small posts, the concentration of American troops at posts in and around Manila; the fact that active operations on the part of troops (both American and Philippine Scouts) have not been necessary on the same extensive scale as in former years, the hearty cooperation of the civil authorities (especially in regard to the cholera situation) have all tended to reduce the morbidity rates in this department, as shown by the following tables:

Year.	Mean strength.	Admission rate.	Constantly noneffective per 1,000.
1908.....	18,041	1,389	46.6
1909.....	19,394	1,298	45.6
1910.....	17,669	1,259	40.2
1911.....	17,766	1,226	37.4
1912.....	19,197	1,120	37.0
1913.....	18,221	863	26.9
1914.....	16,954	865	28.0
1915.....	19,307	931	25.8
1916.....	19,172	775	24.3

With the rate for malaria the lowest since American occupation, dengue practically eliminated from the causes of admission, venereal diseases (with exception of 1913) lower than any year since 1911, alcoholism and tuberculosis also showing reductions over previous years, a result largely attributed to the zeal, efficiency, loyalty, and skill of the medical officers who, with few exceptions, have displayed an energy and intelligence that make them a credit to the Medical Corps of the Army, a gradual reduction in all morbidity figures in the year to come can be looked for.

SPECIAL DISEASES.

The surgeon, Fort William McKinley, P. I., reports as follows:

During July two enlisted men, members of Field Hospital Company No. 4, who were in contact with a cholera case in Santa Ana, were placed in isolation at hospital. One case of Asiatic cholera developed in the person of a private, first class. The patient progressed favorably.

The cases of cholera mentioned in previous reports made satisfactory recoveries and were returned to duty. Three new cases were admitted during September, as follows: One soldier from command, one civilian employed as a packer, and one native laborer employed at the pumping station. The soldier and civilian packer are now convalescent. The native laborer was transferred to San Lazaro, Manila, P. I.

One case of Asiatic cholera admitted December 7, and died December 9, occurred in a civilian, 60 years of age, employed in the Quartermaster Corps. The residence of the cholera case was thoroughly disinfected and contacts isolated.

The department surgeon, Philippine Department, in a special report on cholera, states:

The situation in Bulacan Province, and especially in the town of Hagonoy, was recently rather acute, but this is clearing up. Iloilo is probably at present the most threatening point outside of Manila, which is now the point of greatest danger.

The general situation is not alarming at present, but is one fraught with possibilities. The bureau of health and the office of the department surgeon are in close touch and are working in cooperation. The director of health being also the chief quarantine officer, the preceding remark is also applicable to the quarantine service.

Cholera is epidemic at Nagasaki, Japan, although it is understood that this has not been officially announced. All precautions are taken with reference to trans-Pacific transports calling at that port en route to San Francisco, no passengers being allowed to land, and all supplies which could possibly introduce infection on the ship being prohibited.

All troop-class passengers are isolated for five days and examined as suspected carriers before embarkation on trans-Pacific transports, and first and second class passengers are subjected to the usual examination.

A campaign of examination of cooks, commissary employees, watermen, etc., is being conducted. Recently a native quartermaster employee engaged in filling water coolers at department headquarters was found to be a cholera carrier, and was sent to San Lazaro Hospital.

HAWAII.

The mean enlisted strength of the troops serving in Hawaii during the year 1916 was 8,476, as compared with 8,572 during 1915. Of these, 1,808 were colored. A remarkable feature in connection with the rates for Hawaii in comparison with those for the United States is that while the total admission rate, noneffective, discharge, and death rates are lower, yet the individual rates for the preventable diseases are somewhat higher, especially that for venereal diseases. The average number of days' treatment for each case was 13.67, as compared with 15.06 for the United States.

ADMISSION RATES.

The admission rate during 1916 was 514.51 for total enlisted men per 1,000, as compared with 568.94 for 1915. The rate for disease alone was 405.50 per 1,000 and that for external causes 109.01.

CONSTANTLY NONEFFECTIVE RATES.

The constantly noneffective rate was 19.22 per 1,000 for all causes in 1916, as compared with 20.44 for 1915. The rate for disease was 15.31 and that for external causes 3.91 per 1,000, as compared with 16.39 for disease and 4.04 for external causes in 1915.

DISCHARGES ON CERTIFICATES OF DISABILITY.

The rate for discharge for disability was, for all causes, 15.57 per 1,000, 13.69 being for disease and 1.89 for external causes. In 1915 the total rate was 10.92, that for disease being 9.79 and for external causes 1.13 per 1,000.

DEATHS.

The death rate (total) was 4.84 per 1,000, that for disease being 1.65 and for external causes 3.19, as compared with a total rate of 3.04, 2.25 for disease and 0.79 for external causes per 1,000 in 1915. In actual numbers 41 deaths occurred among the enlisted personnel, 14 being due to disease and 27 to external causes. Nine of these deaths from external causes were due to suicide; 11 from drowning, accidental; 4 from homicide; and 3 from traumatism by fall.

TABLE NO. 43.—*Influence of station on officers and enlisted men, Hawaiian Department, year 1916.*

Hawaiian Department.	Mean strength.	Ratio per 1,000 of mean strength.										Average number of days lost.		
		Admissions to sick report.		Discharged on certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.		From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	
										From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.			
		From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	Total.	In hospital.	Total.	In hospital.	For each case.	For each soldier.	
Schofield Barracks.....	5,707	542.32	314.53	13.76	9.78	4.56	2.10	18.32	11.88	13.56	12.65	4.96	2.26	7.19
Fort Ruger.....	313	539.94	361.02	16.56	13.24	15.97	9.58	32.53	22.82	3.40	.22	1.24	2.30	1.65
Fort Armstrong.....	108	453.70	296.30	9.52	9.52	.....	.....	9.52	9.52	.53	.....	.19	.18	.59
Fort Shafter.....	1,687	410.79	238.29	24.48	21.42	4.74	.....	29.22	21.42	1.06	.03	.39	.94	1.20
Fort De Russy.....	1,196	392.86	188.77	15.87	15.87	.....	.....	15.87	15.87	.99	.01	.36	.92	.51
Fort Kaneohe.....	559	341.68	177.10	13.01	11.15	3.58	.....	16.59	11.15	1.09	.....	.40	1.17	.64
Total officers and enlisted men.....	8,739	511.55	297.42	15.57	12.15	4.99	1.82	20.56	13.97	19.11	18.10	6.99	13.67	11.82
Total enlisted men.....	8,476	514.51	295.89	15.57	12.15	4.84	1.65	20.41	13.80	19.22	18.54	7.03	13.67	11.77

INVALIDING TO THE UNITED STATES.

In 1916 there were 145 cases invalided home, in 1915 there were 142, and in 1914 there were 141.

The diseases or conditions causing the highest number of cases to be invalided home were:

Mental alienation, 37; tuberculosis, 25; syphilis, 10; fracture, 8; flat foot, 6; and 3 cases of enuresis.

Enlisted men invalided home from Hawaii, year 1916.

Cause.	Number of cases.	Per cent- age of total cases.	Duty.	Dis- charged on cer- tificate of disability.	Died.	Other- wise dis- posed of.	Remain- ing at end of year.
Mental alienation (general paralysis of the insane, 2; defective mental development, 8; dementia precox, 19; other forms, 8)	37	25.52	.....	24	12	.....	11
Tuberculosis (pulmonary, 23; of other organs, 2)	25	17.24	.....	7	13	.....	15
Syphilis	10	6.90	2	5	.....	1	2
Fracture	8	5.52	1	7	.....	.....	.....
Flat foot	6	4.14	.....	6	.....	.....	.....
Asthma	5	3.45	2	.....	.....	.....	3
Arthritis, gonorrheal	4	2.76	1	3	.....	.....	.....
Organic disease of the heart	4	2.76	.....	2	.....	.....	2
Pleurisy and results	4	2.76	1	2	.....	.....	1
Exophthalmic goiter	3	2.07	.....	3	.....	.....	.....
Epilepsy	3	2.07	.....	3	.....	.....	.....
Enuresis	3	2.07	.....	2	.....	.....	1
Chronic nephritis	3	2.07	.....	1	1	.....	1
Hysteria	2	1.38	.....	2	.....	.....	.....
Neurasthenia	2	1.38	.....	2	.....	.....	.....
Dysentery	2	1.38	1	1	.....	.....	.....
Eczema	2	1.38	1	1	.....	.....	.....
Other diseases of the bones	2	1.38	.....	2	.....	.....	.....
Arthritis	2	1.38	.....	2	.....	.....	.....
Gunshot wound	2	1.38	.....	1	.....	.....	1
Secondary results of injury	2	1.38	1	1	.....	.....	.....
Chronic alcoholism	1	.69	.....	.....	.....	.....	1
Drug habit	1	.69	.....	1	.....	.....	.....
Multiple neuritis	1	.69	.....	1	.....	.....	.....
Varicose veins	1	.69	.....	1	.....	.....	.....
Goiter	1	.69	.....	1	.....	.....	.....
Chronic bronchitis	1	.69	1	.....	.....	.....	.....
Chronic colitis	1	.69	.....	.....	.....	.....	1
Chronic enteritis	1	.69	.....	1	.....	.....	.....
Chronic dermatitis, cause undeter- mined	1	.69	.....	.....	.....	1	.....
Osteomyelitis	1	.69	.....	1	.....	.....	.....
Paralysis of peronei muscles following incised wound	1	.69	.....	1	.....	.....	.....
Sprain of knee	1	.69	.....	1	.....	.....	.....
Traumatic neurosis, following cerebral concussion	1	.69	.....	1	.....	.....	.....
Deformity of fingers, following lacer- ated wound	1	.69	.....	1	.....	.....	.....
Total cases	145	.....	11	87	6	2	39
Percentage of total cases	.....	100.00	7.59	60.00	4.14	1.38	26.90

¹ Homicide, one each.

The following tabulation for enlisted man furnished a comparison of general rates for Hawaii with the United States:

	Admission rate.		Noneffective rate.		Death rate.		Discharge rate.	
	1916	1915	1916	1915	1916	1915	1916	1915
Hawaii	514.51	568.94	19.22	20.44	4.84	3.04	15.57	10.92
United States	745.38	704.01	30.67	25.74	5.13	5.42	16.76	13.60

Tables Nos. 43 and 74 give figures for all troops serving in Hawaii. The diseases causing the highest admission and noneffective rates among officers and enlisted men are shown in the following tabulations:

Admission rates for some of the principal diseases in the Hawaiian Department, American troops, officers and enlisted men.

	Total officers and enlisted men.		Total enlisted men.	
	1916	1915	1916	1915
Venereal diseases.....	94.78	95.76	98.17	99.04
Constipation.....	20.37	13.52	20.65	13.77
Bronchitis.....	18.87	29.63	18.53	28.98
Tonsillitis.....	13.31	19.83	13.33	19.96
Influenza.....	12.97	19.27	12.39	18.31
Cellulitis.....	12.52	6.76	12.74	7.00
Furuncle.....	12.06	14.08	12.39	14.35
Alcoholism.....	11.04	11.27	11.33	11.55
Gastritis, acute and chronic.....	9.11	7.89	8.61	7.98
Rheumatism, muscular.....	8.08	8.90	7.67	8.52
Hemorrhoids.....	8.76	6.20	8.85	5.95
Appendicitis.....	7.85	10.59	7.79	9.92
Flat foot.....	4.55	.79	4.72	1.82
Mental alienation.....	3.78	4.39	4.53	4.55
Lymphadenitis, nonvenereal.....	3.75	2.48	3.99	2.45
Diarrhea and enteritis.....	3.65	26.36	3.54	24.85
Tuberculosis.....	3.19	3.49	3.19	3.62
Rhinitis, acute.....	3.07	7.44	2.71	7.47
Malarial fevers.....	2.05	1.69	2.12	1.75
Enuresis.....	1.48	1.92	1.53	1.98
Rheumatism, articular, acute and chronic.....	1.14	3.27	1.18	3.38

Noneffective rates for some of the principal diseases in the Hawaiian Department, American troops, officers and enlisted men.

	Total officers and enlisted men.		Total enlisted men.	
	1916	1915	1916	1915
Venereal diseases.....	5.45	4.78	5.61	4.95
Appendicitis.....	.63	.71	.61	.67
Mental alienation.....	.48	.36	.45	.35
Cellulitis.....	.39	.13	.41	.13
Bronchitis.....	.37	.57	.37	.58
Tuberculosis.....	.29	.27	.29	.28
Furuncle.....	.29	.22	.29	.23
Tonsillitis, acute.....	.26	.37	.27	.38
Flat foot.....	.24	.02	.25	.02
Influenza.....	.23	.38	.21	.37
Lymphadenitis, nonvenereal.....	.23	.14	.23	.15
Constipation.....	.22	.13	.20	.14
Hemorrhoids.....	.21	.19	.21	.18
Alcoholism.....	.17	.17	.18	.18
Rheumatism, muscular.....	.12	.18	.12	.18
Gastritis, acute and chronic.....	.11	.13	.10	.13
Malarial fevers.....	.05	.05	.06	.05
Diarrhea and enteritis.....	.05	.38	.06	.37
Rheumatism, articular, acute and chronic.....	.03	.22	.03	.23
Rhinitis, acute.....	.03	.07	.03	.07
Enuresis.....	.02	.28	.03	.24

SPECIAL DISEASES.

TYPHOID FEVER.

Two cases were reported during the year 1916.

PARATYPHOID FEVER.

No cases of this disease occurred.

MALARIA.

Eighteen cases were reported during the year.

SMALLPOX AND VARIOLOID.

None occurred.

MEASLES.

Twenty-three cases occurred.

INFLUENZA.

One hundred and fourteen cases reported with an admission rate of 12.97 per 1,000.

DYSENTERY.

Thirty-three cases reported during the year.

BRONCHITIS.

This disease caused the lightest number of admissions, venereal diseases excepted, 166 cases being reported, with an admission rate of 18.89 per 1,000.

TUBERCULOSIS.

There were 28 cases, 24 of which were pulmonary tuberculosis, and a total of 6 deaths in all.

VENEREAL DISEASES.

There was a slight decrease in the venereal rate for 1916 over 1915, 833 cases occurring, with an admission rate of 94.78. Of these cases 180 were syphilis, 243 chancroid, and 410 gonorrhea.

ALCOHOLISM AND ITS RESULTS.

There were 97 cases admitted for this cause, with an admission rate of 11.04, which was slightly lower than for 1915.

DIARRHEA AND ENTERITIS.

One hundred and forty-five admissions are chargeable to this cause, producing an admission rate of 16.50.

HEMORRHOIDS.

There were 77 cases admitted during the year.

MENTAL ALIENATION.

Forty-three cases of mental alienation were reported, giving an admission rate of 4.89, an increase over 1915.

Periodic prevalence of epidemic diseases and pneumonia in Hawaii; also the number of gunshot cases, by months.

Year.	Ty-phoid.		Para-typhoid.		Small-pox.		Measles.		Diph-theria.		Cerebro-spinal menin-gitis.		Pneu-monia.		Gun-shot wounds.	
	No. 1.		No. 2.		No. 12.		No. 14.		No. 17.		No. 108.		No. 208.		No. 396.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1916.																
January	1														1	1
February							4								2	
March							2		1				1		1	1
April							2				1				2	
May																
June	1														1	
July															2	
August							2						1	1	4	
September							2								2	2
October							9								1	2
November							4						1		1	2
December															3	
	2						23		1		1		3	1	19	8

SANITATION.

The department surgeon, Hawaiian Department, reports as follows:

There has been a decided decrease in rates of admissions and days lost for diseases and injuries in line of duty, with a proportionately greater increase in the same for not in line of duty, over the previous years in which Hawaii has been a separate department.

The diseases and injuries not in line of duty are mainly due to disobedience of orders, and should rather be charged against discipline than against sanitary conditions. With this view one may say that health conditions are good.

The department has been remarkably free from epidemic diseases. The rate of new cases of venereal disease contracted in Hawaii has been increased from 67.5 per 1,000 to 76.5; the days lost from 1,514 to 1,565.

One enlisted man was discharged on account of surgeon's certificate of disability for syphilis, not contracted in line of duty.

There were 154 patients transferred to the Letterman General Hospital. Of this number, 37 were cases of insanity, 28 tuberculosis, 19 results of injuries, 12 syphilis, and all others 58. Attention is again invited to the high rate of mental cases.

There were 24 deaths from various causes, 19 in line of duty and 5 not in line of duty.

SANITATION OF POSTS.

The following sanitary defects noted are not yet reported as corrected:

PORT KAMEHAMEHA.

Ridge ventilation full length of all kitchens in the barracks.

Drainage from company barber shops into rock pile drain in front of barracks.

Low places and borrow pits around barracks, quarters, and batteries should be filled up.

Barrack water-closets should be removed to properly constructed building in rear of barracks.

The following remarks of the quartermaster general relative thereto are contained in ninth indorsement, office of the quartermaster general, December 13, 1916, on sanitary report, Fort Kamehameha, for October, 1916:

"1. * * * That no changes in the construction of the barracks' kitchen roof are recommended until it has been determined that the steps already taken to improve the ventilation are unsuccessful.

"2. With reference to the drainage from the company barber shop commented upon, it is the opinion of this office that its disposition should produce no nuisance.

"3. The grading of low places and filling of borrow pits around the barracks and quarters would involve a considerable expenditure of money, and as no funds are available at this time for this purpose the matter will have to be held in abeyance until additional funds are appropriated by Congress.

"4. With reference to the objectionable location of the barrack water-closets this matter will be given consideration when report accompanied by estimates is received from the commanding general, Hawaiian Department, showing additional construction, alterations, etc., required at Fort Kamehameha."

As stated in last report the plan of the new barracks overlooked certain essentials of sanitation, and changes in original plan have further increased the difficulties. This possibility could probably be obviated in future if in revision of Army Regulations paragraph 1386 read as follows:

"The Medical Department is charged with the duty of investigating the sanitary condition of the Army and making recommendations in reference thereto, of advising with reference to the location of permanent camps, posts, and the sanitary arrangement of barracks, quarters, and buildings occupied by troops or under military control, the adoption of systems of water supply and purification, and the disposal of wastes, with the duty of caring for the sick and wounded, making physical examinations of

officers and enlisted men, the management and control of military hospitals, the recruitment, instruction, and control of the enlisted personnel of the Medical Department and of the Nurse Corps, and furnishing all medical and hospital supplies except for public animals.

FORT SHAFTER.

The imperfect and inadequate sewage plant at Fort Shafter, referred to in last annual report, was made the subject of an exhaustive special sanitary report forwarded with the January, 1916, report from this station. This matter is receiving the attention of the War Department. In accordance with instructions of the Secretary of War in sixteenth indorsement, July 18, 1916, on sanitary report, Fort Shafter, for December, 1915, a cross-section survey and contour map of Fort Shafter, for use in planning sewage treatment works, were forwarded to The Adjutant General by department commander, October 21, 1916. In the meantime the present means of sewage disposal, while unsatisfactory, is being maintained in as good condition as possible.

SCHOFIELD BARRACKS.

The following recommendations with reference to sanitary conditions at Schofield Barracks, made in previous sanitary reports, are repeated:

"That a guardhouse be erected in place of the stockade camp for general prisoners.

"That permanent roads be built to replace the quagmires now used as roads.

"That the makeshift and partial sewer system be extended to all parts of the post and completely modernized."

These recommendations have been discontinued upon receipt of the following information from the office of the quartermaster general:

"On April 10 estimates were forwarded by this office for submission to Congress for funds to complete the accommodations at Schofield Barracks. Said estimate was in the sum of \$2,077,263. Should this appropriation be made, funds will be available for the construction of a permanent guardhouse at Schofield Barracks, for constructing permanent roads, and for water and sewer systems at the cantonment.

"The condition of the septic tanks of the sewage-disposal plant at Schofield Barracks, referred to in last report, was made the subject of a special communication to The Adjutant General by the commanding general, Schofield Barracks, March 6, 1916. Specific instructions for the working of this plant were received from the quartermaster general, and under date of May 17, 1916, the quartermaster, Schofield Barracks, reported 'there are very few flies at the septic tank, and since the mat has thickened the odor has been greatly reduced.' No further complaints from this source have been received."

DEPARTMENT HOSPITAL.

Quarters for medical officers and noncommissioned officers of the Hospital Corps are required. The War Department has been asked for the money to buy adjoining land, and congressional action is sought. Until that time public buildings will be inadequate for command and the officers will be obliged to live from 3 to 10 miles from hospital.

EFFICIENCY OF SANITARY TROOPS.

With the departure of 14 Regular medical officers to the mainland and elsewhere last July and August, the organization of Ambulance Company No. 9 detaching two more from post and hospital duty, and the replacing these by one Regular and eight members of the Medical Reserve Corps, the Medical Department has been handicapped in peace, and in case of actual hostilities would be greatly under its necessary quota. This substitution of Medical Reserve Corps, some being elderly men with families, unfamiliar with their duties and Army methods, filling subordinate positions under Regular officers their juniors in years and length of practice, is not conducive to efficiency, and the surgeon of Schofield Barracks is laboring under special difficulties in this particular.

Of the Regular officers it is unofficially stated that two contemplate resigning in the near future to engage in civil practice. Of the eight Medical Reserve Corps (nine January 20, 1917) it is understood that three will request early relief from active service. One has already asked for duty in Philippine Department, basing his application on the grounds that the expenses in Hawaii are in excess of the salary of a first lieutenant. The present situation as regards quarters makes it very undesirable to assign any married officer with less than captain's rank to duty at department hospital, as rent for suitable houses and necessary travel create expenses in excess of the allowance for commutation.

STATUS OF SERGEANTS, FIRST CLASS.

The same applies to sergeants, first class, Medical Department, who, under the changes in regulations reducing them from grade 13 to 15, are now deprived of commutation. This is a serious loss to a class of worthy noncommissioned officers from whom qualifications have been demanded equal to any of the noncommissioned staff.

ENLISTED PERSONNEL.

With the increased allowance of Medical Department enlisted personnel, the immediate urgent needs of the department hospital and Schofield Barracks are for the first time supplied.

AMBULANCE COMPANY.

The organization of Ambulance Company No. 9 and the recent arrival of portion of its motor transportation will enable future instruction in field service to be given to all recruits of the Medical Department. While perhaps not absolutely necessary in case of hostilities here, at least one field hospital company should be given this department for instruction purposes.

The second ambulance company which the scheme of garrison contemplates should be organized at an early date, and unless a third company is available from the militia it should be furnished by the Regular troops. While all the members of these sanitary units may not be required in actual war for the express purposes for which organized, the services of trained men would be urgently needed in base and other hospitals and could probably not be supplied from the mainland.

MEDICAL SUPPLY DEPOT.

The medical supply depot was established in April. The rented room is inadequate for proper storage and handling of all supplies and field reserves. Bids for new storehouses have been advertised by the Quartermaster Corps, and it is understood that one building is to be assigned to the Medical Department. Delay in receiving supplies from the mainland due to strikes and congestion of freight has occurred. In view of recurrence of such conditions it is the part of wisdom to have on hand one year's supply of nonperishable articles instead of six months. The supply officer has been engaged in overhauling the reserve supplies and bringing them into an up-to-date serviceable condition.

PANAMA CANAL ZONE.

The mean strength of all troops, including officers, serving in the Panama Canal Zone during the year was 7,023, as compared with 5,903 for 1915.

ADMISSION RATES.

The admission rate for all causes was 838.67, that for disease being 694.57, and that for external causes 144.10, as compared with 859.22, 709.81, and 149.41, respectively, for the year 1915.

The diseases causing the highest admission rates were: Venereal diseases, 115.62; malarial fevers, 66.50; bronchitis, 39.30; influenza, 38.59; diarrhea and enteritis, 30.90, and tonsillitis, 25.91.

It is considered worthy of comment to call attention to the remarkable reduction in the malarial fever rate from 85.55 in 1915 to that given above, which would indicate that measures looking to the protection against and destruction of mosquitoes are effective, if properly carried out.

Admission rates for some of the principal diseases for Panama Canal Zone, American troops, officers and enlisted men.

	Officers and enlisted men.		Enlisted men.	
	1916	1915	1916	1915
Venereal diseases.....	115.62	132.48	119.71	136.51
Malarial fevers.....	66.50	85.55	67.52	87.57
Bronchitis.....	39.30	29.65	39.36	29.89
Influenza.....	38.59	46.76	37.89	47.37
Diarrhea and enteritis.....	30.90	16.60	30.08	16.78
Tonsillitis.....	25.91	29.14	24.54	29.36
Furuncle.....	25.77	26.09	25.80	26.57
Lymphadenitis, nonvenereal.....	18.80	13.21	19.46	12.63
Alcoholism (all).....	12.67	15.25	13.12	15.73
Rhinitis, acute.....	11.68	6.78	11.65	6.29
Appendicitis.....	11.39	15.92	11.79	16.08
Rheumatism, muscular.....	9.32	9.32	10.08	8.31
Hemorrhoids.....	9.68	8.13	9.29	8.23
Tuberculosis (all).....	4.13	5.93	4.13	6.12
Flat foot.....	3.99	5.25	4.13	5.43
Rheumatism, articular (all).....	3.84	4.41	.59	4.54
Pleurisy.....	3.42	3.22	.....	2.97
Dysentery.....	1.28	1.02	1.33	1.06

CONSTANTLY NONEFFECTIVE RATE.

The noneffective rate was 27.55 for all causes, as compared with 25.63 for 1915; that for disease being 23.45 per 1,000, and that for external causes, 4.10. The diseases causing the highest noneffective rates were: Venereal diseases, 5.25 per 1,000; malarial fevers, 2.05; lymphadenitis, nonvenereal, 1.27; appendicitis and bronchitis, 0.91 each.

Noneffective rate for some of the principal diseases for Panama Canal Zone, American troops, officers and enlisted men.

	Total officers and enlisted men.		Total enlisted men.	
	1916	1915	1916	1915
Venereal diseases.....	5.25	5.05	5.44	5.21
Malarial fevers.....	2.05	2.27	2.08	2.32
Lymphadenitis, nonvenereal.....	1.27	.95	1.32	.98
Appendicitis.....	.91	1.06	.94	1.08
Bronchitis.....	.91	.64	.92	.64
Influenza.....	.66	.76	.64	.76
Diarrhea and enteritis.....	.51	.23	.52	.23
Tonsillitis.....	.48	.53	.49	.54
Furuncle.....	.38	.40	.35	.40
Tuberculosis (all).....	.38	.35	.39	.36
Hemorrhoids.....	.28	.24	.26	.25
Rheumatism, muscular.....	.23	.14	.23	.11
Flat feet.....	.20	.41	.21	.43
Alcoholism (all).....	.19	.20	.20	.20
Pleurisy.....	.18	.08	.....	.06
Rheumatism, articular (all).....	.09	.21	.02	.21
Dysentery.....	.09	.08	.09	.08
Rhinitis, acute.....	.09	.06	.09	.05

INVALIDED TO THE UNITED STATES.

One hundred and forty-two cases were invalided home, 33 of which number were for tuberculosis, 17 for mental alienation, 9 for flat foot, 7 for epilepsy, 5 for secondary results of injury, and 4 for chronic bronchitis.

Enlisted men invalided home from the Panama Canal Zone, year 1916.

Cause.	Number of cases.	Percentage of total cases.	Duty.	Discharged on certificate of disability.	Died.	Otherwise disposed of.	Remaining at end of year.
Tuberculosis (pulmonary 30, of other organs 3).....	33	23.24	5	8	1	1	18
Mental alienation (dementia precox 14, other forms 3).....	17	11.97	.....	11	.....	1	5
Flat foot.....	9	6.34	2	6	.....	.....	1
Epilepsy.....	7	4.93	1	6	.....	.....	.....
Secondary results of injury.....	5	3.52	.....	4	.....	.....	1
Chronic bronchitis.....	4	2.82	1	.....	.....	2	1
Syphilis.....	3	2.11	.....	3	.....	.....	.....
Neurasthenia.....	3	2.11	.....	2	.....	.....	1
Otitis media.....	3	2.11	.....	3	.....	.....	.....
Varicose veins.....	3	2.11	.....	3	.....	.....	.....
Arthritis.....	3	2.11	1	2	.....	.....	.....
Fracture.....	3	2.11	.....	2	.....	.....	1
Arthritis, gonorrheal.....	2	1.41	.....	2	.....	.....	.....
Chronic alcoholism.....	2	1.41	.....	.....	1	.....	1
Pterygium.....	2	1.41	1	.....	.....	1	.....
Ulcer of duodenum.....	2	1.41	1	.....	.....	1	.....
Calhitis.....	2	1.41	1	.....	.....	1	.....
Gunshot wound.....	2	1.41	.....	2	.....	.....	.....
Chronic nephritis.....	2	1.41	.....	2	.....	.....	.....
Kyphosis.....	1	.70	.....	1	.....	.....	.....
Chancroid, indolent.....	1	.70	.....	.....	.....	.....	1
Lymphosarcoma.....	1	.70	.....	.....	1	.....	.....
Exophthalmic goiter.....	1	.70	.....	1	.....	.....	.....
Chronic lead poisoning.....	1	.70	.....	1	.....	.....	.....
Tabs dorsalis.....	1	.70	.....	.....	1	.....	.....
Follicular conjunctivitis.....	1	.70	1	.....	.....	.....	.....
Chronic catarrhal conjunctivitis.....	1	.70	.....	1	.....	.....	.....
Keratitis phlyctenular.....	1	.70	1	.....	.....	.....	.....

¹ Suicide.

Enlisted men invalided home from the Panama Canal Zone, year 1916—Continued.

Cause.	Number of cases.	Percentage of total cases.	Duty.	Discharged on certificate of disability.	Died.	Otherwise disposed of.	Remaining at end of year.
Trachoma.....	1	.70	.....	1	.....	.....	.....
Astigmatism.....	1	.70	.....	.....	.....	.....	1
Choroiditis.....	1	.70	1	.....	.....	.....	.....
Detached retina.....	1	.70	.....	1	.....	.....	.....
Organic disease of the heart.....	1	.70	.....	1	.....	.....	.....
Cardiac neurosis.....	1	.70	.....	1	.....	.....	.....
Tachycardia.....	1	.70	.....	1	.....	.....	.....
Irritable heart.....	1	.70	.....	1	.....	.....	.....
Goiter.....	1	.70	1	.....	.....	.....	.....
Pleurisy.....	1	.70	.....	.....	.....	.....	1
Chronic gastritis.....	1	.70	.....	1	.....	.....	.....
Appendicitis.....	1	.70	1	.....	.....	.....	.....
Inguinal hernia.....	1	.70	.....	1	.....	.....	.....
Constipation.....	1	.70	.....	.....	.....	1	.....
Adhesions, peritoneal.....	1	.70	.....	.....	.....	1	.....
Pyelitis.....	1	.70	.....	.....	.....	1	.....
Nephrolithiasis.....	1	.70	.....	.....	.....	1	.....
Orchitis, chronic.....	1	.70	.....	1	.....	.....	.....
Sycoosis barbae.....	1	.70	.....	1	.....	.....	.....
Scar tissue, painful.....	1	.70	1	.....	.....	.....	.....
Osteomyelitis.....	1	.70	.....	1	.....	.....	.....
Ankylosis.....	1	.70	.....	.....	.....	1	.....
Bunion.....	1	.70	.....	1	.....	.....	.....
Dislocation semilunar cartilage.....	1	.70	.....	1	.....	.....	.....
Sprain.....	1	.70	.....	1	.....	.....	.....
Lacerated wound.....	1	.70	.....	1	.....	.....	.....
Total cases.....	142	.....	19	75	4	12	23
Percentage of total cases.....	.....	100.00	13.38	52.81	2.82	8.45	22.54

Tables Nos. 44 and 73 give the figures for all troops serving in the Canal Zone, including officers, and Table No. 76 gives the rates for enlisted men only.

DISCHARGE ON CERTIFICATE OF DISABILITY.

The rate for discharge on certificate of disability was 18.43, as compared with 13.03 for 1915.

DEATHS.

The death rate for all causes was 3.99 per 1,000; that for disease being 1.57, and for external causes 2.42. In all, there were 28 deaths, 17 of which number were attributable to external causes.

TABLE NO. 44.—*Movement of sick in Panama Canal Zone, years 1916 and 1915, officers and enlisted men, American troops.*

	Years.	From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.
		Total.	In hospital.	Total.
Ratio per 1,000 of mean strength:				
Admissions to sick report.....	1916	333.67	568.84	568.85
	1915	350.22	471.62	561.75
Discharges on certificate of disability.....	1916	18.43	.....	15.04
	1915	12.03	.....	11.00
Deaths.....	1916	3.99	.....	1.57
	1915	2.46	.....	1.31
Total losses.....	1916	22.42	.....	16.61
	1915	15.49	.....	12.31
Noneffective.....	1916	27.55	17.48	18.01
	1915	25.63	15.74	16.41
Average number of days lost:				
For each soldier.....	1916	10.08	6.40	6.59
	1915	9.35	6.75	5.99
For each case.....	1916	12.02	11.25	11.65
	1915	10.89	12.18	10.66

NOTE.—For further report see Eastern Department.

Periodic prevalence of epidemic diseases and pneumonia in the Canal Zone; also the number of gunshot cases, by months.

Year.	Typhoid.		Paratyphoid.		Smallpox.		Measles.		Diphtheria.		Cerebrospinal meningitis.		Pneumonia.		Gunshot wounds.	
	No. 1.		No. 2.		No. 12.		No. 14.		No. 17.		No. 108.		No. 208.		No. 396.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1916.																
January.....									1	.....	.....	.....	1	.....	.....	.....
February.....																
March.....							3	.....	.....	.....	.....	.....	.....	.....	1	.....
April.....															4	.....
May.....															1	.....
June.....							3	.....	.....	.....	.....	.....	.....	.....	2	.....
July.....															1	.....
August.....																
September.....															1	.....
October.....															3	.....
November.....															3	.....
December.....							2	.....	.....	.....	1	.....	1	.....	.....	.....
Total.....							8	.....	1	.....	1	.....	2	.....	16	2

PORTO RICO.

The troops are all recruited from and partly officered by native Porto Ricans. The regiment is commanded by a United States Army officer. The sanitary work in connection with this organization is in charge of a medical officer from the regular corps and a medical officer from the Medical Reserve Corps. The two garrisoned posts have a mean strength of 991 officers and men.

ADMISSION RATES.

The admission rate for all causes in 1916 (for officers and enlisted men) was 1,022.20, as compared with 552.16 in 1915; for disease, 942.48, as compared with 496.52, and for external causes, 79.72, as against 55.63 in 1915.

There is a marked increase in the total admission rate for 1916 over the year 1915, although the rate for venereal diseases is lower this year as compared with 1915. The diseases causing the highest admission as well as the highest noneffective rates were influenza and venereal, with rates of 250.25 and 80.73 per 1,000, respectively.

NONEFFECTIVE RATES.

The noneffective rate for all causes is also slightly higher than for the preceding year, being 24.91 for 1916, as compared with 22.36 for 1915. The rate for disease was 22.53, as compared with 20.57 for 1915.

It will be noted that there was a marked increase in the malarial rate.

Some of the principal diseases, with the admission and noneffective rates, as compared with the preceding year, are shown in the following tabulation:

Admission and noneffective rates per 1,000 of mean strength for the most prevalent diseases among officers and enlisted men in Porto Rico.

	Admission rates.		Noneffective rates.	
	1916	1915	1916	1915
Influenza.....	250.25	2.78	3.40	0.10
Venereal diseases.....	80.73	84.84	4.84	4.57
Chancroid and results.....	24.22	26.43	1.27	1.68
Gonorrhea and results.....	24.22	33.38	1.06	1.58
Syphilis and results.....	32.29	24.90	2.51	1.33
Malarial fevers.....	69.63	8.34	1.60	.34
Diarrhea and enteritis.....	50.46	19.47	.83	.37
Febricula and undetermined fevers.....	38.35	6.95	.92	.12
Acute abscess and cellulitis.....	37.34	44.61	.65	1.16
Furuncle.....	33.30	23.64	.56	.45
Rhinitis, acute.....	28.25	26.43	.60	.49
Rheumatism, muscular.....	26.24	11.13	.66	.19
Dengue.....	22.20	76.50	.64	3.94
Gastritis, acute, catarrhal.....	21.19	.....	.24	.....
Diseases of the lymphatic system.....	18.16	31.99	.83	1.08

NOTES.—For further report see Eastern Department.

DISCHARGES ON CERTIFICATE OF DISABILITY.

The rate for discharge for disability was 11.52 per 1,000 for diseases for 1916, as compared with 7.34 for diseases in 1915.

DEATHS.

The death rate was 4.04 per 1,000, there being 4 deaths during the year, 3 due to disease and 1 to injury. In 1915 there were 2 deaths due to disease.

CHINA.

The mean strength of all troops, including officers, serving in China during 1916 was 1,369. This force consisted of Infantry, a detachment of Signal Corps, Hospital Corps, and noncommissioned staff, all white.

ADMISSION RATES.

The admission rate for all causes was 874.36, that for disease 778.67, and that for external causes 95.69, which are all lower than for the year 1915. The diseases causing the highest admission and noneffective rates are shown in the following tabulations:

The principal diseases for China—Admission rates for American troops, officers and enlisted men.

	Total officers and enlisted men.		Total enlisted men.	
	1916	1915	1916	1915
Venereal diseases.....	284.88	488.30	295.33	504.12
Diarrhea and enteritis.....	69.39	48.62	63.13	47.94
Tonsillitis.....	44.56	77.65	46.18	78.66
Lymphadenitis, nonvenereal.....	32.14	27.57	32.55	28.46
Bronchitis.....	31.41	27.57	31.04	26.22
Constipation.....	26.30	20.03	27.25	23.22
Influenza.....	16.30	20.03	15.14	23.22
Alcoholism (all).....	16.07	32.65	16.65	33.71
Appendicitis.....	13.88	10.16	14.38	9.74
Malarial fevers.....	8.77	23.22	9.08	21.72
Furuncle.....	8.77	15.24	9.08	15.73
Rheumatism, muscular.....	7.30	24.67	7.57	24.72
Pneumonia (lobar).....	6.57	4.35	6.81	4.49
Mumps.....	6.11	5.08	5.30	5.24
Rheumatism, articular (all).....	4.38	10.88	4.54	11.24
Dysentery.....	3.65	1.45	3.79	1.50
Pleurisy.....	2.92	4.35	3.03	4.49
Tuberculosis (all).....	1.46	5.08	1.51	5.24

Noneffective rates for American troops, officers and enlisted men.

	Total officers and enlisted men.		Total enlisted men.	
	1916	1915	1916	1915
Venereal diseases.....	13.95	13.57	14.45	14.01
Lymphadenitis, nonvenereal.....	1.51	1.15	1.53	1.19
Appendicitis.....	1.42	.81	1.47	.81
Bronchitis.....	.79	.53	.78	.53
Diarrhea and enteritis.....	.65	.48	.64	.46
Tonsillitis.....	.60	1.06	.63	1.07
Alcoholism (all).....	.59	.37	.40	.38
Constipation.....	.50	.50	.51	.71
Pneumonia (lobar).....	.29	.27	.30	.28
Influenza.....	.28	.28	.27	.35
Pleurisy.....	.26	.23	.27	.24
Mumps.....	.23	.40	.24	.41
Malarial fevers.....	.16	.42	.17	.40
Rheumatism, articular (all).....	.16	.23	.16	.23
Furuncle.....	.13	.23	.14	.29
Dysentery.....	.11	.28	.12	.29
Tuberculosis (all).....	.11	.70	.11	.73
Rheumatism, muscular.....	.08	.57	.08	.56

DISCHARGE ON CERTIFICATE OF DISABILITY.

The discharge rate for disability was 13.15 per 1,000 for all causes.

DEATHS.

The death rate was 10.23 per 1,000, the rate for disease being 8.04, and that for external causes 2.19. The death rate was higher than for 1915, being 4.35 for the latter year.

Tables Nos. 3, 73, and 76 give all figures for the troops serving in China for the year 1916.

The rates would indicate that the general health conditions have slightly improved during the year 1916, although not so marked as last year (1915) over 1914. A considerable decrease in the admission rate for venereal diseases is noted, with an increase, however, in the noneffective rate for the same disease.

TABLE NO. 46.—Comparison of rates for the several countries garrisoned by the United States Army.

[Comparison of rates (per 1,000 of mean strength) years 1915-16, officers and enlisted men, Regular Army.]

		Admissions.		Noneffective.		Discharges.		Deaths.					
		1916	1915	1916	1915	1916	1915	1916	1915				
American troops, excluding officers:													
United States.....		745.38	696.04	30.67	25.77	16.76	13.60	5.13	5.31				
Alaska.....		344.97	373.65	9.23	8.71	21.48	11.80	6.71	2.54				
Philippine Islands.....		838.60	976.88	27.88	28.70	14.42	23.22	4.49	2.87				
China.....		890.24	1,438.32	31.31	34.45	13.63	9.74	10.60	4.35				
Hawaii.....		514.51	568.50	19.22	20.24	15.57	10.92	4.84	3.26				
Panama, Canal Zone.....		849.63	859.22	28.15	25.63	18.43	13.03	8.99	2.46				
The Army.....		747.59	735.97	27.98	25.77	16.52	14.26	5.21	4.57				
Native troops (enlisted):													
Porto Rican Regiment.....		1,022.20	555.07	24.91	22.78	11.52	7.34	4.04	4.41				
Philippine Scouts.....		482.17	573.84	14.58	15.68	6.99	11.44	2.69	2.54				
		Venereal diseases.				Malarial fevers.		Tuberculosis.					
		Admissions.		Noneffective.		Admissions.		Noneffective.		Admissions.		Noneffective.	
		1916	1915	1916	1915	1916	1915	1916	1915	1916	1915	1916	1915
American troops, including officers:													
United States.....		87.07	79.95	5.34	3.84	12.19	12.37	0.34	0.27	3.46	2.68	2.63	2.33
Alaska.....		19.48	34.31	.70	.53		1.27		.01	1.30	1.27	.02	.15
Philippine Islands.....		154.77	176.88	7.36	7.70	60.93	61.68	1.59	1.13	4.49	6.08	.36	.47
China.....		284.88	483.39	13.95	13.57	8.77	23.22	.16	.42	1.46	5.06	.11	.70
Hawaii.....		94.78	95.76	5.45	4.78	2.05	1.69	.06	.05	3.19	3.49	.29	.27
Panama, Canal Zone.....		115.62	132.48	5.25	5.05	66.50	85.58	2.05	2.27	4.13	5.93	.38	.35
The Army.....		98.80	103.07	5.64	4.59	22.10	22.18	.61	.48	3.43	3.44	1.86	1.79
Native troops:													
Porto Rican Regiment.....		80.73	80.57	4.84	4.82	69.63	8.81	1.60	.35	5.05	1.47	.37	.19
Philippine Scouts.....		29.93	34.33	1.79	1.96	43.38	80.11	1.14	1.54	3.05	4.54	.36	.58

ARMY TRANSPORTS.

The medical superintendent, Army Transport Service, port of New York, reports as follows:

The transports listed below have been in service from port of New York for 1916, with the following sailings:

U. S. transport *Kilpatrick*, between New York and Cristobal, Canal Zone.

U. S. transport *Sumner*, between New York and Cristobal, Canal Zone (also one trip was made touching at Kingston, Jamaica).

U. S. transport *Buford*, between New York and Iquique, Chile.

During this period no major infectious cases have been removed from any of the ships by national quarantine officers. A few cases of measles have been reported among troops, but handled in the ordinary way.

Numerous troops have been transported in 1916, but no epidemics have arisen either aboard or ashore in consequence and no infection has been conveyed from distant ports.

Since October 11, 1916, a medical superintendent, appointed by S. O. 238, W. D., October 11, 1916, has had direct charge of inspections of these vessels at the home port. The sanitary condition of the transports for 1916 has been satisfactory.

The department surgeon, Western Department, acting as medical superintendent, Army Transport Service, port of San Francisco, reports as follows:

The sanitary condition of the Army transports and the accommodations provided for troops and passengers have been satisfactory.

During the voyage of the *Thomas* from San Francisco to Manila in February, 21 cases of mumps and 3 cases of measles developed. Original source of infection was undoubtedly at Fort McDowell, Cal., from which port both mumps and measles were reported as having existed during the month of January, 1916.

Fifteen cases of measles developed between September 9 and October 4 on the U. S. transport *Sherman* en route to Manila and seven cases during the voyage ending at San Francisco, August 12, 1916.

The surgeon of the *Logan* reported that seven cases of measles among the children of the first-class passengers occurred during the voyage from Manila to San Francisco, March 21 to April 19.

Weekly physical inspections of troops were held on all transports. Men found suffering from venereal diseases were placed under treatment and denied shore leave while in port.

Under the direction of the medical superintendent, all persons embarking or disembarking were examined to determine whether they had any infectious disease.

GENERAL HOSPITALS.

LETTERMAN GENERAL HOSPITAL, SAN FRANCISCO, CAL.

The location of this hospital on the Presidio military reservation is permanently fixed by the amount of money already invested.

The small amount of land assigned to the reservation for the hospital is entirely occupied by buildings, and it can not be further expanded without the allotment of additional land to its reservation. This can be done without taking any of the land necessary for troops stationed on the Presidio reservation. The small plat of land on the extension of the present line of the hospital reservation, south of the Fine Arts Palace, could be used, and immediate action should be taken to secure the assignment of this small plat of land to the Letterman General Hospital reservation, as to-day, if an emergency arose, there isn't any land within the limits of the present reservation on which a half dozen tents could be pitched.

The climate is bracing and invigorating, never very hot and never very cold, and it is particularly fine for the purposes of a general hospital. The patients returning here from the Tropics recuperate rapidly, and their vitality is restored probably much sooner here than in any other section of the country.

During the year the following new buildings were completed: Ward A; a reinforced concrete building; addition to the bacteriological laboratory; last unit, nurses' dormitory medical and surgical dispensary.

The number of patients admitted during the year was 2,972. There were 334 cases remaining from the previous year; 2,941 cases were disposed of during the year. In addition to the above, there were 111 admissions from the Federal National Guard; of these 95 were disposed of, and 16 were remaining in hospital on December 31, 1916. The number of cases treated during the year was 3,383, as follows: Medical, 1,650; surgical, 1,158; venereal, 315; and mental, 260. The average number of days lost for each case was as follows:

	Officers.	Enlisted men.	General prisoners.	Civilians.	
				Male.	Female.
Medical.....	46.48	30.63	18.15	20.81	12.09
Surgical.....	39.97	22.68	26.29	14.60	15.52
Venereal.....	46.00	44.34	21.50	49.31	17.33
Mental.....	62.54	81.44	34.14	43.73	10.86

The following tables show the movement of the sick, together with the principal sources of admission, during the calendar year 1916:

	Officers and enlisted men.	Others.	Total.
ADMISSIONS.			
Command.....	82	48	140
Transfer.....	1,869	86	1,955
Otherwise.....	63	814	877
Total.....	2,024	948	2,972
DEPARTURES.			
Duty.....	1,334	10	1,344
Died.....	35	44	79
Discharged for disability.....	379	1	380
Deserted.....	7	1	8
Discharged, expiration of term.....	1	4	5
Transferred to hospital for insane.....	73	3	76
Transferred to other hospitals.....	89	.....	89
Otherwise disposed of.....	76	884	960
Total departures.....	1,994	947	2,941
SUMMARY.			
Remaining from 1915.....	272	62	334
Admissions, 1916.....	2,024	948	2,972
Total to be accounted for.....	2,296	1,010	3,306
Departures, 1916.....	1,994	947	2,941
Remaining, midnight, Dec. 31, 1916.....	302	63	365
Days lost:			
In hospital.....	80,688	19,641	100,329
In quarters.....	2,432	.....	2,432
Total days lost.....	83,120	19,641	102,761
	Officers.	Others.	Enlisted.
Average number of days lost.....	46.159	20.332	35.275
Average number of patients daily.....	20.557	52.884	206.546
Average number of days lost per patient.....	.....	.....	31.406

Federal National Guard.

		Officers and enlisted men.
Admissions:		
By transfer from other hospitals.....		110
Otherwise admitted.....		1
Total admissions.....		111
Departures:		
Returned to duty.....		45
Discharged for disability.....		13
Otherwise disposed of.....		37
Total departures.....		95
Summary:		
Admissions, 1916.....		111
Departures, 1916.....		95
Remaining, midnight, Dec. 31, 1916.....		16
	Officers.	Enlisted.
Average number of days lost.....	26.666	27.935
Average number of patients daily.....	.050	.558
Average number of days lost per patient.....		27.641

There were 79 deaths in all during the year, 37 officers and enlisted men, 2 general prisoners, and 40 civilians, and others. The principal causes for these deaths is given below:

Cancers and other malignant tumors.....	9
Organic diseases of the heart.....	7
Broncho-pneumonia.....	7
Cardiac dilatation.....	6
Bright's disease.....	5
Pneumonia (lobar).....	5
Tuberculosis of the lungs.....	5
Myocarditis.....	3
Diseases of the arteries.....	2
Diseases of the intestines.....	2
Diseases of the liver.....	2
Peritonitis.....	2
Diseases of the bladder.....	2

There were 393 discharged on certificate of disability. Of this number 273 were not in line of duty and 120 in line of duty. The principal causes were as follows:

Flat foot.....	67
Mental alienation.....	60
Syphilis.....	20
Diseases of the heart.....	18
Neurasthenia.....	17
Hernia.....	17
Diseases of the joints.....	17
Tuberculosis of the lungs.....	16
Rheumatism and gout.....	14
Diseases of the eye.....	13
Epilepsy.....	12
Diseases of the bones.....	12
Gonococcus infection.....	10
Nephritis.....	10

The following is a statement of the admissions and disposition of insane patients during the year:

Movements of the insane.

	Officers and en- listed men.	Others.	Total.
Returned to duty.....	2		2
Left hospital.....		4	4
Discharged on certificates of disability at this hospital.....	44		44
Died.....	4		4
Transferred to the Government Hospital for the Insane.....	73	3	76
Sent home for discharge.....	13		13
Deserted.....	2		2
Total.....	138	7	145

Surgical operations were as follows: General surgery, 924; eye, ear, nose, and throat, 519.

The following is a condensed tabular statement of the surgical operations:

Operations.

Operations.	Regular Army.		Federal National Guard.		Total.	Retired officers.		Army Nurse Corps.	General prisoners.	Civilians.	Total.	Grand total.
	Officers.	Enlisted men.	Officers.	Enlisted men.		Retired.	enlisted men.					
Cranium.....		4			4					3	3	7
Face.....		11		1	12							12
Neck.....	1	5			6				1	5	6	12
Upper extremity.....	2	15			17		1	1	2	34	38	55
Thorax.....		2		8	10				2	8	10	20
Abdomen (laparotomy).....	13	96	7	11	127		5	1	15	83	104	231
Genito-urinary.....	2	45		2	49				1	36	37	86
Rectum and anus.....	8	55	1	5	70		1	1	10	10	22	92
Gynecological, internal.....										60	60	60
Gynecological, external.....										79	79	79
Lower extremity.....	3	54		2	59		1		2	38	41	100
Major (not included).....	1	1		1	3					2	2	5
Minor (not included).....	19	49			68	1	3	3	5	52	64	132
Obstetrical.....										33	33	33
Total.....	49	338	8	30	425	1	11	6	38	443	449	924

Nine hundred and twenty-four operations were performed, as against 771 last year (the eye, ear, nose, and throat cases not included), an increase of 153. In addition and not listed in the above statement, there were 7,435 dressings done and 48 emergency cases attended to in the dressing room of the operating pavilion, and 9,569 dressings were done in the dressing room of the surgical ward for infected cases and 171 minor operations performed.

SURGICAL SERVICE.

Gynecology and obstetrics.—The appended report of operations and the tabular statement give in detail the number and character of gynecological operations performed and treated. The facilities for caring for these cases are satisfactory and sufficient, though at times the ward has been uncomfortably crowded.

In July the ward for special surgical cases was opened and used as an obstetrical ward, a needed addition, and well meets the requirements as an obstetrical ward.

There was a total of 57 confinements cared for during the year, divided as follows:

Normal deliveries.....	53
Breech presentations.....	2
High forceps, axitraction.....	1
Midwifery forceps.....	1
Total.....	57

There was one stillbirth, due to prolapse of cord in high forceps delivery, the labor very prolonged. One baby died within a week after birth through failure of the foramen ovale to close. There was one death in puerperium from the complication of double labor pneumonia. There were six miscarriages and abortions, and one premature birth.

In all cases of perineal laceration immediate repair was done.

A total of 418 patients were admitted to the woman's ward during the year, an increase of 36 over the admissions of last year.

Venereal wards.—Venereal cases admitted and treated amounted to a total of 373 during the year, divided as follows:

Syphilis:

Primary.....	17
Secondary.....	66
Tertiary.....	50
Period undetermined.....	34
Hereditary.....	1
Acquired nonvenereally.....	1
Iridocyclitis, syphilitic.....	1

Syphilis, all periods, total..... 170

Of this total, 108 were returned to duty, 29 were discharged on certificate of disability, 13 left hospital, 1 deserted, 2 died, and there are 17 remaining.

Chancroids.....	32
Bubo, chancroidal.....	12
Phimosis, chancroidal.....	1

Chancroids and complications, total..... 45

Of these 42 were returned to duty, 1 was discharged on certificate of disability, 1 deserted, and 1 is remaining.

Gonorrhea:

Urethritis, acute.....	70
Urethritis, subacute.....	16
Urethritis, chronic.....	28
Arthritis.....	20
Epididymitis.....	14
Prostatitis.....	3
Urethral stricture.....	4
Cystitis.....	1
Endocarditis.....	2

Gonorrhea and complications, total..... 158

Of the above, 116 were returned to duty, 24 were discharged on certificate of disability, 7 left hospital, 1 died, and 10 are remaining under treatment.

Of all the venereal cases, 128 existed prior to enlistment, and at the end of the year there is a total of 28 remaining under treatment.

Orthopedic work was discontinued in July of this year, the officer who was in charge of it having been ordered away. Considerable success attended this line of work, and many cases were saved to the service which otherwise would have had to be discharged.

The following is a statement of the work done in the eye, ear, nose, and throat clinic:

	Hospital cases.						Out cases.							Grand total.
	Officers.	Enlisted men.	Families, officers and enlisted men.	Civilian employ-ees.	Civilians.	Total.	Officers.	Enlisted men.	Families, officers and enlisted men.	Civilian employ-ees.	Army Nurse Corps.	Civilians.	Total.	
SUMMARY.														
Total eye cases.....	52	212	20	2	9	296	105	201	270	13	25	49	663	969
Total ear cases.....	26	144	18	4	3	195	18	56	91	8	19	12	207	402
Total nose cases.....	50	215	20	9	4	298	32	82	89	11	10	5	229	527
Total throat cases.....	34	231	129	14	3	411	26	40	271	12	8	4	361	772
Total, all cases.....	162	803	187	29	19	1,200	181	380	521	44	52	70	1,460	2,660

There were 2,660 cases treated, and 519 operations performed during the year.

There were 446 cases of all classes refracted.

The dentist on duty at the hospital reports 1,717 persons treated in the dental clinic during the year.

The work of the laboratory has increased 50 per cent over that of the preceding year. This laboratory, in addition to performing the large amount of work required for this hospital, does the work of the Western Department and for posts not in that department but located in the western part of the United States. The report of the work done will be found under the general head of "Laboratories."

The mean daily strength of the personnel on duty during the year was as follows:

Medical officers.....	13.08
Post noncommissioned staff.....	2
Detachment, Medical Department and Quartermaster Corps.....	140.72
Nurse Corps.....	42.30

Mean aggregate..... 198.10

There were 27 civilians employed by the Medical Department, and 11 by the Quartermaster Corps on duty in the hospital during the year.

The enlisted personnel at this hospital is inadequate. The strength has been increased somewhat, but it is still too meager to render the service required. It is recommended that it be increased to the full allowance provided for general hospitals, as per Manual for the Medical Department, 1916.

On December 31, 1916, there were 393 patients in hospital, with a total enlisted strength of but 151.

The mean strength of enlisted personnel for the year was 140.72.

Army Nurse Corps.—The work of the Army Nurse Corps on duty at this hospital has been of a high order, and at times very arduous, due to its inadequate number. The fluctuation of patients in the hospital, and sudden call for nurses for isolation, made a great drain on the number on duty in the wards.

There has been an average of 42 nurses on the roster at this hospital during the year; but this does not mean that this was the average of nurses doing actual duty, as it included nurses coming from the islands with leaves of absence granted them, those here for a short time before sailing for the islands, and those on actual assignment here on leave and on sick report.

There are always a number of seriously sick patients here to be cared for, and, in order to give them this care and to allow for leaves and sickness, the number of nurses assigned to this hospital should not be less than 55.

A new X-ray laboratory, with modern X-ray equipment, commensurate with the size and importance of this institution, is essential.

The following designated new buildings were completed during the calendar year 1916:

January 22, 1916.—Ward A, a reinforced concrete building.....	\$19, 678. 00
February 10, 1916.—Addition to the bacteriological laboratory.....	5, 284. 10
July 28, 1916.—Last unit, nurses' dormitory.....	18, 653. 00
December 22, 1916.—Medical and surgical dispensary.....	19, 806. 50

MEDICAL SERVICE.

During the past year there have been no new features on the medical service worthy of mention from the standpoint of diagnosis and treatment.

A new ward designed especially for the open-air treatment of tuberculosis patients was completed and opened during the year. This ward is devoted to the care of patients awaiting transfer to Fort Bayard, N. Mex., and of other tuberculosis patients who can not be so transferred for various reasons.

There were no new features introduced in the X-ray laboratory during the year.

One thousand and forty-one Roentgenograms were made during the year; this number included the examination of 63 gastrointestinal cases after bismuth meals, and also 135 dental cases.

The construction of a new X-ray laboratory commensurate with the size and importance of this hospital, with modern equipment, including a larger X-ray machine installed on an alternating current, would greatly increase the scope of this work.

During the year there has been a daily average of about 26 cases receiving treatment in the new hydrotherapeutic plant. In the small plant operated in the officers' ward about six cases received hydrotherapeutic treatment daily.

One case of typhoid fever was admitted to the hospital during the year. This patient had received two doses of typhoid prophylaxis, the second one three days before he was taken ill. He made an uninterrupted recovery. No cases of paratyphoid fever were admitted during the year.

One case of cerebrospinal meningitis, epidemic form, was admitted to the hospital during the year. He was treated with antimeningitis serum and made a good recovery. It was, however, necessary to discharge him on certificate of disability for neuritis, a sequel of the disease.

Three cases of trichinosis were admitted. They all recovered after a rather prolonged convalescence.

A civilian employee of the Quartermaster Department was admitted to the hospital during the year, suffering from leprosy. He was transferred to the isolation hospital, San Francisco, Cal.

First Lieut. H. R. Oliver, Medical Corps, has been in charge of the laboratories for chemical and pathological work since October 19, 1916. Capt. H. J. Nichols, Medical Corps, was chief of the laboratory service from January 1, 1916, to July 25, 1916, when he was ordered to the Southern Department for temporary duty. During the rest of the year the work was under the direction of Lieut. H. R. Oliver, Medical Reserve Corps, assistant clinical professor of medicine, of medical department of Stanford University. Sergt. Augsburg, Medical Department, who had been in the laboratory as non-commissioned officer in charge, was relieved February 12, 1916, by Sergt. Williams. The present force is one sergeant and four privates, first class, and privates.

The laboratories served as clinical laboratories for the hospital with its 3,078 admissions, and as a department laboratory for the Western Department. The work covers parts of chemistry, bacteriology, parasitology, pathology, and serology, and may be summarized as follows:

Urine examinations.....	5,767	Typhoid examinations:	
Sputum examination for tubercle bacilli.....	1,077	Blood.....	21
Throat cultures for diphtheria....	810	Stool.....	20
Blood examinations.....	895	Urine.....	12
Examination of feces for parasites and ova.....	744	Agglutinations.....	4
Examination of venereal sores and discharges.....	401	Renal functional tests.....	14
Spinal fluid examinations.....	181	Animal inoculations.....	29
Wassermann reactions.....	7,984	Water examinations:	
Skin reactions.....	39	Chemical.....	8
Smears, miscellaneous.....	1,112	Bacteriological.....	41
Stomach contents, routine.....	58	Milk examinations:	
Stomach contents, toxicological....	4	Chemical.....	14
String tests for occult blood.....	16	Bacteriological.....	20
Skin examination.....	7	Examination of human milk.....	5
Cultures, miscellaneous.....	268	Examination of rats and gophers for plague.....	4
Vaccines made.....	42	Miscellaneous chemical examinations—drugs, flour, etc.....	30
Vaccines and injections.....	487	Tissue examinations.....	102

Autopsies.—Under orders of the commanding officer, post-mortem examinations were made on all officers and enlisted men dying in this hospital and permission was obtained for examination of some of the other cases. Of the 83 deaths, 53, or about 63 per cent, were followed by autopsies. In general, about 90 per cent of the clinical diagnoses were confirmed at autopsy.

Syphilis.—The most interesting development under this heading has been the marked increase in the number of Wassermann reactions performed during the year. This item shows an increase of more than 150 per cent over the preceding year, due to the routine examination, since January 1, 1916, of 2,834 recruits from Fort McDowell, Cal., and since July 14, 1916, of 1,342 recruits from Fort Logan, Colo.

The following table gives a brief summary of the Wassermann reactions during the year:

	Total.	(+)	(+)	(+ -)	(-)	Anticomplementary Hemolyzed, etc
Recruit depot, Fort Logan, Colo.....	1,342	92	27	31	1,166	26
Per cent.....		6.85+	2.01+	2.31+	86.14+	1.93+
Recruit depot, Fort McDowell, Cal.....	2,834	199	70	85	2,478	2
Per cent.....		7.02+	2.47+	2.99+	87.43+	.07+
All other posts in Western Department.....	3,808	907	184	214	2,478	25
Per cent.....		23.82+	4.83+	5.62	65.07+	.65+
Total.....	7,984	1,198	281	330	6,123	53
Per cent.....		15.00+	3.52+	4.13+	76.67+	.66+

The value of the practice of making and recording routine Wassermann tests on recruits has been repeatedly demonstrated at this hospital within a few months of enlistment. It is believed that this value will increase with years of service, and that the Wassermann test should become a recognized part of the examination of recruits. The serum test for tuberculosis recently investigated by Maj. Craig could also be made with the same specimen of blood.

Typhoid group.—Two cases were diagnosed typhoid fever during the year. One case, a private in the Coast Artillery Corps stationed at Fort Winfield Scott, Cal., was admitted to this hospital March 11, 1916, and positive blood cultures were obtained on March 16, 1916. He had completed his typhoid prophylaxis on March 1, 1915. The source of infection could not be traced, but was probably in the city of San Francisco. No other cases developed at that post.

The second case was a private in the Second Infantry, Washington National Guard, serving at Calexico, Cal. A positive blood culture was obtained July 24, 1916, in this laboratory and the patient was subsequently transferred to this hospital for treatment. He had received but two doses of typhoid prophylaxis; the second dose, given July 5, 1916, and he was taken sick on July 8, 1916.

No cases of paratyphoid were admitted.

Diphtheria.—Further experience confirms the opinion that medical officers, enlisted men of the Medical Department, and nurses should be subjected to the Schick test before taking charge of diphtheria cases, and that, if possible, this test should be carried out on contacts before using prophylactic doses of serum.

In several instances, virulence tests were made on organisms from carriers, and when the tests were negative the carriers were released from quarantine or observation.

Rabies.—Two cases which had been bitten by a rabid dog were treated with the Pasteur treatment, one receiving the intensive treatment and the other the modified treatment; neither case developed symptoms. The brain of the dog was received and Negri bodies demonstrated in this laboratory.

Water supply.—The water supply of this reservation has given much concern to those responsible for its purity on account of the change—accidental contamination—of the watershed from the city streets and sewers. The alum-sand filter is efficient ordinarily but after a break of a city sewer into Lobos Creek in January, 1916, the

filter proved unable to purify the water and boiling was necessary. This was quite a serious matter, as it involved the water supply of Fort Scott, the Presidio, the Letterman General Hospital, Fort Mason, Fort McDowell, and the transports. After considerable agitation a chloric gas outfit was secured, with the assistance of Maj. W. J. L. Lyster, and installed in September, 1916. The machine has proved quite satisfactory and two parts per million has made it possible to reduce the amount of alum used about one-half. Experiments are in progress to determine if it is safe to reduce the alum further or entirely give it up, using simply the sand filter to remove gross dirt. The price of alum has gone up about 300 per cent.

Amount of work and needs.—The work done, in general, exceeds that of the preceding year by over 50 per cent, some few branches of the work, such as Wassermann tests, showing a much larger increase. This increase has been accommodated notwithstanding the fact that since July the laboratory has not at any one time had its full quota of enlisted personnel, and at times running with as low as 50 per cent of the number at work the year preceding. The greatest need at present is for a competent chemical assistant to replace the private whose services the laboratory lost the latter part of November.

Gas was installed in the laboratory about the middle of July, 1916, and has proved a great aid and timesaver.

Special work.—A lecture on "Spirochetiasis" was given at the Hooper Institute, University of California, on March 4, 1916, by Capt. Nichols.

A paper on "Possible Reasons for Lack of Protection after Antityphoid Vaccination," by Capt. Nichols, was published in the Military Surgeon of March, 1916.

In line with the policy of the Surgeon General's Office to establish research boards in connection with the larger laboratories, some work was undertaken by Capt. Nichols on the gall bladder carrier problem. The results of this investigation were published in a paper entitled "Experimental Observations on the Pathogenesis of Gall Bladder Infections in Typhoid, Cholera, and Dysentery," which appeared in the Journal of Experimental Medicine for November, 1916.

WALTER REED GENERAL HOSPITAL, TAKOMA PARK, D. C.

This hospital serves as the general hospital for the Eastern United States and as the post hospital for Washington Barracks.

It is situated at Takoma Park, D. C., about 6 miles from the War Department and three-quarters of a mile from the Baltimore & Ohio Railroad stations at Takoma Park, D. C., and Silver Spring, Md.

The present capacity of the hospital, including the basement wards, is about 180 beds. In addition there are 17 beds in the isolation ward, and arrangements have been made by which 100 additional patients may be cared for, temporarily, in the detachment barracks.

The average number of days in hospital for patients has increased over 23 per cent during the year, the increase for officers and enlisted men amounting to 20 per cent.

The accommodations for officers and women, and others on the status of officers, are inadequate and some discomfort and dis-

satisfaction has resulted from frequent shifting of patients to provide space for the different sexes, ages, and conditions.

The commanding officer recommends that wards "A" and "B" be made three stories each, thereby providing additional rooms for special cases.

Additional room is also needed for the X-ray laboratory. During the year 729 cases were X-rayed, of which number 108 were taken two or more times for comparison, and 53 were dental cases.

The group of rooms for psychopathic patients was completed and put into use during the year, but has not proved satisfactory.

Although there are 11 medical officers on duty at this hospital, only two are provided with quarters in the grounds, an arrangement which is unsatisfactory and impairs the efficiency of the hospital service.

At least two double sets of married officers' quarters should be provided.

With the exception of necessary minor repairs the hospital and most of the other buildings are in good condition.

The stables should have concrete floors, and arrangements should be made for the disposal of manure without fly breeding.

The temporary coal sheds which were erected some years ago are unsightly and falling down; they should be replaced by permanent structures.

A shelter for the protection of persons waiting for the cars, often a quarter of an hour at a time, should be provided, which could well be constructed so as to combine a waiting pavilion with a proper and dignified entrance to the grounds in the shape of an ornamental arch with gateways.

The grounds require grading, filling, and the surface drained.

The service of the hospital would be much improved by a more permanent staff, medical officers, enlisted men, and nurses.

A dental surgeon, whose services are greatly in demand at this hospital, has recently been assigned to duty and will no doubt be a very useful addition to the staff.

The character of recruits received during the year has been below the normal. Many are very young and irresponsible, others are hard drinkers, and quite a few seem incorrigible.

The allowance of men of the Quartermaster Corps is insufficient, necessitating the detail of at least six enlisted men of the Medical Department for duties that should properly be performed by the Quartermaster Corps personnel.

The number of patients admitted during the year, including civilians, was 1,350, an increase of 175 over the preceding year.

The average number of days in hospital for each case was as follows:

Class of cases.	Officers.	Enlisted men.	Civilian.	
			Males.	Females.
Medical	34.48	29.13	31.86	24.09
Surgical	29.00	35.93	16.67	16.38
Veneral	53.00	34.49	42.00	.....
Mental	22.40	32.57	32.25	19.25

The following table shows the movement of the sick, together with the principal sources of admission, during the calendar year 1916, including civilians. No general prisoners were admitted.

	Officers and en- listed men.	Officers and en- listed men, Organized Militia.	Civilians.	Total.
Admissions:				
Command.....	144		11	155
Transfer.....	602	29	6	637
Otherwise.....	115	12	431	558
Remaining Dec. 31, 1915.....	85		21	106
Total to be accounted for.....	946	41	469	1,456
Dispositions:				
Duty.....	607	25	7	639
Died.....	25		19	44
Discharged for disability.....	110			110
Deserted.....	1			1
Discharged, expiration of term.....				
Transferred to Government Hospital for Insane.....	27	2	2	31
Transferred to Fort Bayard, N. Mex.....	7			7
Transferred to other hospitals.....				
Otherwise disposed of.....	91	10	414	515
Remaining Dec. 31, 1916.....	78	4	27	109
Total.....	946	41	469	1,456

There were 44 deaths. Of this number 7 were officers, 18 enlisted men, 5 retired officers, 4 retired soldiers, and 10 civilians.

The following were the causes of deaths:

Cellulitis.....	1	Pneumonia, lobar.....	1
Diabetes, mellitus.....	3	Myocarditis, acute dilatation and	
Sarcoma.....	3	hepatitis, chronic, syphilitic.....	1
Carcinoma of uterus.....	1	Influenza, acute.....	2
Carcinoma of stomach.....	2	Cerebrospinal meningitis.....	1
Tumor of pancreas.....	1	Pernicious anemia, with edema of	
Tumor hypernephroma.....	1	lungs.....	1
Tumor malignant of prostate.....	1	Strangulated inguinal hernia.....	1
General arteriosclerosis.....	3	Hypertrophy of prostate, with urinary	
Chronic interstitial nephritis uremia.....	2	retention.....	1
Fracture, base of skull, meningitis..	1	Typhoid fever, acute cardiac dilata-	
Fracture of skull.....	1	tion.....	1
Pulmonary tuberculosis.....	1	Pylephlebitis and peritonitis.....	1
Injury of skull or brain.....	1	Suppression of urine and uremia.....	1
Paralysis of intestines.....	1	Softening right cerebral hemisphere..	1
Tabes dorsalis, syphilitic.....	1	Nephritis, subacute, with toxemia...	1
Cerebrospinal and pulmonary syphi-		Aortitis, acute.....	1
lis, meningeal irritation.....	1	Gastric obstruction following perfora-	
Gunshot wound, self-inflicted.....	1	tion of gastric ulcer.....	1
Drank solution of lye (insane).....	1	Appendicitis, acute, suppurative...	1
Hanging by neck, depressive mania..	1		

There were 110 discharged on surgeon's certificate of disability. Of this number 47 were in line of duty, 61 were not in line of duty, and two cases were discharged for two separate disabilities, one in line of duty and one not in line of duty.

The causes were as follows:

Causes of disability.	Yes.	No.	Yes and no.	Total.
Injuries and diseases of organs of locomotion.....	17	14		31
Neurasthenia.....	3	1		4
Appendicitis, chronic.....		1		1
Hyperthyroidism.....	2	1		3
Syphilis, tertiary.....		2		2
Exophthalmic goiter.....		1		1
Diseases of organs of vision.....	3	3		6
Diseases of the ear.....		1		1
Tuberculosis, pulmonary.....	1			1
Trichophytosis, sycosis barbæ.....		1		1
Neuritis.....	1			1
Obesity.....		1		1
Dementia præcox.....		3		3
Psychopathic constitution.....		2		2
Constitutional inferiority.....		2		2
Chronic lead poisoning.....		1		1
Leukemia, splenomyelogenous type.....	1			1
Tubercular hip-joint disease.....	1			1
Hemiplegia.....	1			1
Paresis.....		2		2
Endocarditis.....	1			1
Rheumatism, chronic, recurrent.....		1		1
Irritable heart.....		1		1
Sprue.....	1			1
Fecal fistula.....	1			1
Precox state.....		1		1
Dyspepsia.....	1			1
Laryngitis, chronic.....	1			1
Varicose veins.....		2		2
Fracture lumbar vertebrae.....		1		1
Sarcoma, cervical glands.....	1			1
Cardiac neurosis.....		1		1
Hernia.....	2			2
Cardiac arrhythmia.....		1		1
Pyelitis, chronic.....		1		1
Encephalitis, chronic.....		1		1
Cyst, traumatic, with persistent sinus.....		1		1
Cystitis, gonorrheal with urinary incontinence.....		1		1
Sinus, persistent, perineal with cystitis.....	1			1
Synovitis, chronic and psychopathic constitution.....			1	1
Arthritis, gonorrheal with pes planus.....		1		1
Psychopathic constitution with chronic constipation.....		1		1
Constitutional inferiority, syphilis, tertiary.....		1		1
Arthritis, gonorrheal, flat foot, second degree.....		1		1
Intra-abdominal adhesions with neuropathic constipation.....			1	1
Angina pectoris and arteriosclerosis.....	1			1
Parenchymatous nephritis, myocarditis.....	1			1
Varicocele and atrophy, left testicle.....		1		1
Flattening transverse arches, hydrocele.....	1			1
Flat foot and arthritis, metatarsal.....		1		1
Cardiac neurosis, mitral regurgitation.....		1		1
Varicose veins, swollen left leg and thigh.....	1			1
Hydrocele, incipient degeneration of testicle.....	1			1
Arthritis, gonorrheal.....		3		3
Pains, cardiac region.....		1		1
Cardiac neurosis.....		1		1
Miliary tuberculosis of omentum and tuberculosis, pulmonary, latent.....	1			1
Arteriosclerosis and endocarditis.....	1			1
Tachycardia and tonsillitis, chronic.....	1			1
Syphilis, cerebrospinal paraplegia, with aortitis, paresis of bladder, and pyonephritis.....		1		1
Total.....	47	61	2	110

The following is a statement of admissions and dispositions of insane patients during the year:

	Officers and enlisted men.	Civilians.
Returned to duty.....	1	
Left hospital.....		6
Discharged on surgeon's certificate of disability.....	10	
Transferred to Government Hospital for Insane.....	29	2
Left hospital on sick leave.....	1	
Died.....	1	
Total.....	42	8

An active surgical clinic is maintained at the hospital, the following being a condensed tabular statement of the surgical operations during 1916:

	Officers.	Enlisted men.	Officers, Organ- ized Militia.	Enlisted men, Organized Militia.	Total.	Retired officers.	Retired enlisted men.	A r m y Nurse Corps.	Civilians.	Total	Grand total.
Cranium.....	1	1	.....	.....	2	.....	.....	.....	.....	2	2
Eye.....	1	8	.....	1	10	.....	1	.....	1	2	12
Nose.....	23	59	1	3	86	.....	2	.....	38	40	126
Ear.....	1	1	.....	.....	2	.....	1	.....	8	9	10
Throat.....	10	23	.....	.....	33	.....	.....	.....	217	217	250
Face.....	.....	2	.....	.....	2	.....	1	.....	1	2	4
Neck.....	1	.....	.....	.....	1	.....	.....	.....	1	1	2
Upper extremity.....	6	15	.....	.....	21	2	3	.....	4	9	30
Abdomen.....	14	58	1	4	77	.....	3	.....	42	45	122
Gynecological, external.....	.....	.....	.....	.....	.....	.....	.....	.....	27	27	27
Gynecological, internal.....	.....	.....	.....	.....	.....	.....	.....	.....	22	22	22
Lower extremity.....	2	20	.....	.....	22	1	2	.....	1	4	26
Major, not included.....	9	23	.....	.....	32	1	1	.....	22	24	56
Minor, not included.....	2	7	1	.....	10	2	.....	.....	4	6	16
Total.....	69	217	3	8	297	6	14	.....	388	408	705

Included in this list are 37 operations for appendicitis, 39 operations for hernia, 23 operations for hemorrhoids, and 49 gynecological operations. Four women were delivered at term. Of the operations performed one was followed by death.

In addition to the above list of operations, there were done 10,664 separate dressings, exclusive of eye and ear clinic, during the year.

The following is a statement of the work done in the laboratory during the year:

Examinations of—

Urine.....	3,391
Blood.....	774
Sputum.....	511
Feces.....	767
Stomach contents.....	118
Urethral discharges.....	289
Autopsies.....	22
Miscellaneous.....	410
Total.....	6,282

The following is a statement of the apparatus in use and the work done in the hydrotherapy plant and gymnasium during the year. There are four rooms occupied.

Apparatus in use:

Punching bag and platform.....	1
Rowing machine.....	1
Weight-lifting machine.....	1
Medicine balls.....	1
Indian clubs, pairs.....	5
Boxing gloves, sets.....	1
Dumb-bells, pairs.....	3
Plinth.....	1
Baking apparatus:	
Body baking apparatus.....	1
Local baking apparatus.....	2
Electric vibrator.....	1

Baths:

Cabinet.....	1
Needle and shower.....	1
Douche, jet.....	1
Tub.....	1
Sitz.....	1
Carbonated.....	1
Pack—hot, cold, or dry.....	1
Drip sheet.....	1

SUMMARY OF TREATMENTS GIVEN.**Baths:**

Needle and shower.....	5, 282
Douche, jet.....	2, 470
Douche, Scotch.....	2, 015
Douche, fan.....	1, 219
Douche, perineal.....	30
Tub.....	168
Carbonated.....	24
Sitz.....	107
Pack—hot or wet.....	88
Electric cabinet.....	3, 613
Vibration.....	1, 160
Massage.....	4, 749
Baking.....	2, 051
Gymnasium.....	1, 456

Number of patients treated.....	226
Patients remaining under treatment, Dec. 31, 1916.....	25

Total..... 351

Two attendants, members of the Medical Department, gave the treatments the greater part of the year.

The following is a statement of the work done in the eye, ear, nose, and throat clinic:

Officers and enlisted men.....	427
Families of officers and enlisted men.....	183
Civilian employees of Government.....	6
Army Nurse Corps.....	3
Examination of Army nurses for appointment.....	78
All others.....	39

Total..... 736

The mean daily strength of the personnel on duty at the hospital during the year was as follows:

Medical officers.....	9. 14
Post noncommissioned staff.....	. 43
Medical Department and Quartermaster Corps.....	118. 81
Army Nurse Corps.....	26. 04

Mean aggregate..... 154. 42

GENERAL HOSPITAL, FORT BAYARD, N. MEX.

The general hospital at Fort Bayard is devoted to the treatment of pulmonary tuberculosis in officers and enlisted men of the Army and in beneficiaries of the soldiers' home.

Fort Bayard is situated in Grant County, N. Mex., in the extreme southwestern part of the State. On account of the southern location of the hospital, it is generally assumed by those unfamiliar with the local conditions that the climate is very warm; but the altitude, 6,165 feet, largely counterbalances the influence of the southern sun

and renders the climate cool rather than warm. The usual vicissitudes of the seasons are experienced. In the winter there is occasional snow; frosts occur nearly every night; rarely there is severe cold approaching the temperature of zero Fahrenheit, but such cold is of brief duration. On the whole the winters are relatively warm, dry, and clear. In the summer the heat is tempered by the dryness of the air, with the resulting diathermancy. The fact that summer is the time of the chief precipitation also exercises an important effect upon the temperature, clouds and rain very frequently being present during what would otherwise be the hottest portion of the days. These factors result in producing singularly cool weather, the summer being far more comfortable for the human organism, whatever the thermometer readings, than that of the greater part of the Northern States of the East and of the Mississippi Valley. For the treatment of tuberculosis the peculiar excellence of the climate of Fort Bayard consists in the fact that it is one that avoids harmful extremes of temperature, yet in its diurnal and annual variations affords a sufficient stimulus to the human organism to favor activity of the metabolic processes.

It is desired to invite especial attention to the need of increased accommodations for enlisted patients. The capacity of the enlisted men's infirmary has been heretofore given as 66 beds. (See annual report for 1912.) If the estimation of the capacity of the hospital be made in the usual way, that is, to include only the beds available in wards and rooms (not including a certain number of beds placed upon the porches), the capacity of the enlisted men's infirmary is only 137 beds. Similarly, the capacity of Annex No. 1 of the infirmary, rated at 55 beds, is only 28 beds if beds in porches be excluded from consideration. Annex No. 2, occupied for the first time during the last calendar year, is considered to have a capacity of 40 beds. Counting only the bed space available within the two wards of this building we have a total of only 24 beds. The infirmary with its annexes is supposed to have a capacity of 161 beds and actually accommodated 140 patients on December 31, 1916. Yet if every patient had been adequately protected against the inclemency of the winter weather the number would have been only 89. Under the present arrangement a certain number of patients are necessarily subjected to discomfort if not actually dangerous exposure during the occasional storms of winter. There can be no question that adequate housing should be provided for this class of patients which includes the most serious cases, so that each patient who is lodged habitually upon one of the porches can also have a bed within the building in which in case of need he can take refuge. Such provision is now made for the patients quartered in the officers' and women's infirmaries.

Paragraph 334, Manual for the Medical Department, 1916, provides that no cases of surgical tuberculosis should be sent to Fort Bayard unless the condition of the patient is such that benefit may be expected from hygienic treatment in which outdoor life plays a prominent part or, in other words, unless the patient is not strictly confined to his bed by the nature of his disease. This provision was framed partly with the idea that patients so ill with surgical tuberculosis as to be unable to leave their beds within the wards would reap but little advantage from the climatic treatment as practiced at this hospital. But another consideration was also taken into account,

namely, that the scanty and ill-arranged space devoted to surgical cases in the present infirmary might easily be overtaxed if the number of this class of patients were not strictly limited by exclusion of patients incapable of locomotion. Surgical tuberculosis is, however, peculiarly amenable to heliotherapy, a mode of treatment for which the sunny and cool climate of New Mexico is especially adapted. Cases of surgical tuberculosis, therefore, need and should have wards at this institution so arranged that beds could easily be moved between the wards and porches so that even the sickest patients might receive the benefits of the sun baths.

It would seem that this institution has now passed beyond the experimental stage and that adequate provision should at once be made for the proper accommodation of its patients. That a new and enlarged infirmary is urgently needed is sufficiently apparent from the facts just cited and the need is seen to be the greater if one reflects that the proposed and partly effected increase in the size of the Army will necessarily in time lead to a considerable increase in the number of patients at this hospital. The recommendation heretofore repeatedly made is therefore renewed that immediate steps be taken with a view to securing the necessary appropriation for a new building.

The number of patients admitted during the year, including beneficiaries of the soldiers' home and civilians, was 778, being an increase of 40 over the preceding year. The average number of days in hospital for each case was as follows:

	Officers.	Cadets.	Enlisted men.	Beneficiaries of soldiers' home.	Civilians.	
					Male.	Female.
Medical.....	112.2	295.76	102.58	132.80	112.11	118.79
Surgical.....			10.57		17.00	14.66
Veneral.....			9.55			
Mental.....	4.0		13.00			

The following table shows the movement of the sick, together with the principal sources of admission during the calendar year 1916, civilians being included:

	Officers and enlisted men.	Civilians.	Beneficiaries of soldiers' home.	Total.
Admissions:				
From command.....	128	13		141
By transfer.....	280	6		286
Otherwise.....	8	66	277	351
Remaining Dec. 31, 1915.....	172	27	164	363
Total.....	588	112	441	1,141
Dispositions:				
Returned to duty.....	174	11		185
Died.....	29	8	33	70
Discharged for disability.....	179			179
Discharged expiration term.....	3			3
Transferred to other hospitals.....	2			2
Otherwise disposed of.....	17	66	247	330
Remaining Dec. 31, 1916.....	181	27	161	372
Total.....	588	112	441	1,141

¹ Does not include one civilian, not on sick report, who died at the post.

Fourteen cases were admitted for suspected pulmonary tuberculosis in which the diagnosis was not confirmed. Two cases were under treatment for tuberculosis in which the lungs were apparently not involved. Two cases died en route to this hospital and are not included in the above table. Of the cases classed as tuberculosis, 29 were returned to duty. One case was returned to duty in 1916 and has since been readmitted. Still another case has been twice returned to this hospital for treatment for tuberculosis, although the diagnosis of pulmonary tuberculosis has never been indisputably established. The number of cases under treatment on December 31, 1915, was 363. The number of cases under treatment on December 31, 1916, was 372. The total number of cases treated during the year was 1,141, of which 798 were cases of tuberculosis.

The causes and number of deaths which occurred at this hospital during the year are shown in the following tabulation:

Fracture of skull.....	1	Chronic pulmonary tuberculosis....	57
Lobar pneumonia.....	1	Tuberculosis meningitis.....	2
Tuberculosis peritonitis.....	2	Pernicious anaemia.....	1
Acute cardiac dilatation.....	3	Acute fatty degeneration of the liver.....	1
Gunshot wound of the heart.....	1	Traumatic hemo-pneumothorax incident to gunshot wound of chest, etc.....	1
Pyogenic infiltration and gangrene, both lungs.....	1	Acute congestion of lungs.....	1
Sclerosis of coronary arteries.....	1		
Cerebro-spinal meningitis.....	1		

There were 74 deaths in all, of which number 2 were officers, 27 enlisted men, 33 beneficiaries of the soldiers' home, and 12 civilians.

The above table includes 1 case of pulmonary tuberculosis (civilian), not on sick report; 1 case of fracture of skull (civilian), who died in the vicinity of the hospital; 1 case of acute cardiac dilatation (soldier), who died en route to this hospital; and 1 case of pulmonary tuberculosis (soldier), who died en route to this hospital.

There were 179 patients discharged on certificate of disability. The causes were as follows:

Pulmonary tuberculosis.....	175
Chronic pleurisy.....	1
Hernia, inguinal, recurrent.....	1
Diabetes.....	2
Total.....	179

The following is a condensed statement of the surgical operations performed at this hospital during the year:

	Officers.	En-listed men.	Total.	Army Nurse Corps.	Civil-ians.	Total.	Grand total.
Nose.....	5	7	12		14	14	26
Ear.....					10	10	10
Throat.....	2	4	6		39	39	45
Thorax.....	1	7	8		3	3	11
Eye.....		1	1		2	2	3
Abdomen.....		6	6		14	14	20
Gynecological, external.....					1	1	1
Gynecological, internal.....					19	19	19
Lower extremities.....		1	1	2	1	3	4
Major, not included.....		6	6		1	1	1
Minor, not included.....		2	2		9	9	15
Genitourinary.....		2	2		6	6	8
Anus and rectum.....		4	4		6	6	10
Total.....	8	38	46	2	125	127	179

The above tabular statement includes 10 cases of artificial pneumothorax, not included in the report of surgical operations (Table No. 66).

The treatment of pulmonary tuberculosis by artificial pneumothorax has been employed at this hospital since January 12, 1913. Forty-nine patients have been submitted to this treatment; of these, 48 were cases of pulmonary tuberculosis and one of bronchiectasis. In 40 cases the compression was successful; 9 could not be compressed on account of pleural adhesions. As to results, 23 cases have had their disease arrested and are in good health, as far as known; of these, 18 cases have left the hospital; 7 cases had extensions in the healthier lung and treatment had to be discontinued; 5 died; and 2 left the hospital. Two cases died shortly after compression, of heart failure. In the case of bronchiectasis the treatment had to be discontinued on account of dyspnoea. Five cases left the hospital soon after compression. Twenty of the above cases had pleural exudate as a result of the infection of pneumothorax. Of these, 2 developed empyema. In 1 of the cases a Schede operation was performed with the result of complete recovery.

The following is a statement of the hospital laboratory work done during the year:

Examinations of—		Wassermann tests	312
Sputum.....	9, 474	Human autopsies.....	65
Blood.....	212	Histopathological sections of human tissues.....	892
Pleural exudates.....	17	Miscellaneous examinations.....	71
Urine.....	1, 014		
Feces.....	21		
Gastric contents.....	11		

In addition to the above, considerable experimental and research work on complement-fixation and other subjects connected with tuberculosis has been done.

The number of completed cases of pulmonary tuberculosis in 1916 was 474. Important complications were present as follows:

Tuberculous laryngitis.....	59	Tuberculous spondylitis.....	2
Syphilis.....	33	Pulmonary abscess.....	1
Morphinism.....	3	Pulmonary osteoarthropathy.....	1
Chronic tuberculous otitis media.....	17	Aneurysm of arch of aorta.....	1
Nephritis.....	3	Mitral regurgitation.....	1
Arteriosclerosis.....	2	Fecal fistula.....	1
Empyema.....	3	Epilepsy.....	1
Malarial fever.....	4	Bronchial asthma.....	1
Tuberculous enteritis.....	11	Tuberculous meningitis.....	1
Tuberculous arthritis.....	4	Tuberculous prostatitis.....	1
Tuberculous fistula in ano.....	13	Manic depressive psychosis.....	1
Spontaneous pneumothorax.....	2	Tuberculous pyopneumothorax.....	1
Tuberculous peritonitis.....	2	Chronic frontal suppurative sinusitis.....	1
Pleurisy with effusion.....	8	Tuberculous neuritis.....	1
Cataract.....	2	Bronchiectasis.....	1

The result of treatment in completed cases¹ of pulmonary tuberculosis was as follows:

Class.	Number.	Apparently cured.		Arrested.		Apparently arrested.		Quiescent.		Improved.		Unimproved.		Died.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Incipient.....	35	1	2.85	10	28.57	3	8.57	5	14.28	14	40.00	2	6.06	.....	.....
Moderately advanced.....	203	4	1.97	7	3.44	.....	.....	9	4.43	129	63.05	47	23.14	.....	.....
Far advanced.....	234	.....	.....	.....	.....	.....	.....	4	1.28	97	41.25	75	32.05	58	24.78
Acute military.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	100.00
Total.....	473	5	1.05	17	3.59	3	0.634	19	3.8	240	50.73	124	26.21	66	13.95

The above table does not include one patient who deserted. It includes 25 cases under treatment one month or less.

The following table shows the result of treatment in all cases of pulmonary tuberculosis:

Cases.	Number.	Apparently cured.		Arrested.		Apparently arrested.		Quiescent.		Improved.		Unimproved.		Died.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Incipient.....	76	4	5.26	15	19.73	11	14.47	12	15.79	28	36.41	6	7.9	.....	.....
Moderately advanced.....	340	9	2.35	12	3.52	3	.88	21	6.17	200	58.82	88	25.88	7	2.05
Far advanced.....	381	.....	.....	1	.26	.....	.26	9	2.36	161	42.26	151	39.63	58	15.22
Acute military.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	100.00
Total.....	798	13	1.62	28	3.5	15	1.86	42	5.26	389	48.63	245	30.7	66	8.14

The above table includes 25 cases under treatment one month or less and 40 cases admitted during the month of December, 1916, and remaining December 31, 1916.

The mean strength of the personnel on duty during 1916 was as follows:

Officers (medical officers and chaplain).....	10.97
Officers, patients, on light duty.....	1.39
Post noncommissioned staff.....	2.17
Detachment Quartermaster Corps.....	36.17
Detachment Hospital Corps on duty.....	114.49
Detachment Hospital Corps under treatment for tuberculosis, but carried as members of the command.....	7.44
Detachment headquarters band, Eleventh Cavalry.....	10.83
Army Nurse Corps.....	21.32

ARMY AND NAVY GENERAL HOSPITAL, HOT SPRINGS, ARK.

Although this hospital was originally intended for the treatment especially of diseases in which hydrotherapy is indicated, because of the need for the evacuation of the sick from the base hospitals in the Southern Department to avoid any congestion, it has served in part as a general hospital for both the Southern and Central Departments. Paragraph 1441, Army Regulations, 1913, provides that—

The Army and Navy General Hospital, Hot Springs, Ark., is under the direction of the Secretary of War, and is devoted to the treatment of the officers and enlisted men of the military and naval service of the United States, cadets at the United States Military and Naval Academies, officers of the Revenue-Cutter (now Coast Guard)

¹ By "completed cases" are meant all cases which have terminated their connection with the hospital in any way.

Service, officers of the Public Health Service, and honorably discharged soldiers and sailors of the Regular and Volunteer Army and Navy of the United States, for such diseases as the waters of the Hot Springs of Arkansas have an established reputation in benefiting.

During the year the following improvements and additions were made:

Porches and plumbing which had been omitted in the construction of Hospital Corps barracks.

The ward additions of 1915, the Hospital Corps barracks, and a set of noncommissioned officers' quarters were inclosed with screening.

New plumbing was installed in the douche room of the old officers' bathhouse, the tile floor relaid, and a new wall control, sitz, shower, needle, and perineal douche fixtures were added, making a third complete hydrotherapeutic room.

A one-story porch was erected over the kitchen door of the Nurse Corps dormitory.

The porches of all the ward buildings were inclosed with sash and awnings provided which gives sufficient protected spaces for 133 additional beds for patients, bringing the present bed capacity of the hospital up to 322.

There were no additional buildings constructed during the year.

The total number of admissions during the period covered by this report was 817, a decrease of 43 from the preceding year. Of the number of admissions to sick report, 28 were officers of the Regular Army, 3 were officers of the National Guard, 6 retired officers, 198 enlisted men of the Regular Army, 113 enlisted men of the National Guard, 22 retired enlisted men, and 447 civilians, which include honorably discharged soldiers and sailors of the Army, Navy, Marine Corps, civilian employees, and Army Nurse Corps. The daily average number of patients treated in hospital was 105.63.

The following tables show the principal causes of admission and the method of disposition of all cases:

Remaining in hospital Dec. 31, 1915.....	101
Admissions:	
Alcoholism.....	2
Diseases of the respiratory system.....	7
Diseases of the heart.....	13
Diseases of the urinary system.....	12
Dysentery.....	4
Eczema.....	5
Myalgia.....	10
Rheumatism, articular.....	38
Rheumatism, muscular.....	41
Sprains and muscular strains.....	7
Gastritis.....	7
Hernia, inguinal.....	9
Appendicitis.....	9
Diseases of the kidneys.....	27
Arthritis.....	160
Syphilis and results.....	44
Gonorrhea and results.....	38
Carcinoma.....	2
Diseases of the circulatory system.....	100
Malarial infections.....	9
Pulmonary tuberculosis.....	3
All other causes.....	270
Total admissions.....	817
Total to be accounted for.....	918

Dispositions:

Returned to duty.....	280
Died.....	23
Discharged on surgeon's certificate of disability.....	25
Transferred.....	6
Discharged from hospital (civilians).....	532
Otherwise disposed of.....	10
Remaining in hospital Dec. 31, 1916.....	62
Total accounted for.....	918

DEATHS.

Twenty-three deaths occurred during the year, including one officer on the active list of the Army, one officer of the National Guard on active service, and two enlisted men of the Regular Army, from the following causes:

Endocarditis, chronic.....	1
Broncho pneumonia.....	1
Nephritis, interstitial, chronic.....	4
Lobar pneumonia.....	1
Raynaud's disease of right lower extremity.....	1
Shock following prostatectomy.....	2
Mitral insufficiency.....	1
Uremia.....	1
Apoplexy.....	1
Thrombosis, coronary artery.....	1
Lukemia, spleno-myelogenous.....	1
Carcinoma, ascending colon.....	1
Gastroenteritis.....	1
Amoebiasis, chronic.....	1
Leptomeningitis, malarial.....	1
Aortic stenosis; aortic regurgitation.....	1
Cerebral hemorrhage.....	1
Myocarditis, chronic.....	1
Heart failure; hypostatic congestion.....	1
Total.....	23

DISCHARGES FOR DISABILITY.

During the year 25 enlisted men were discharged on account of disability. The causes were distributed as follows:

Pain and tenderness about arch and plantar surface of right foot, following old injury.....	1
Nephritis, parenchymatous, chronic.....	1
Nephritis, interstitial, chronic.....	1
Nephritis, diffuse, chronic.....	1
Pyelonephritis, chronic, right.....	1
Pyelonephritis, chronic, left.....	1
Arthritis, polyarticular, chronic, both feet.....	1
Arthritis, deformans, right hip, following chronic rheumatic arthritis.....	1
Arthritis, chronic, left knee; halux valgus, left.....	1
Arthritis, chronic, left knee, with enlargement of all bones of the joint.....	1
Arthritis, chronic, left sacro-iliac.....	1
Arthritis, chronic, involving lower dorsal and all lumbar vertebrae.....	1
Arthritis, chronic, left shoulder, with marked atrophy of all muscles of shoulder girdle.....	1
Arthritis, chronic, right hip.....	1
Locomotor ataxia.....	2
Osteoarthritis, right hip, following chronic rheumatic arthritis.....	1
Mitral insufficiency, organic, sequel to acute rheumatic endocarditis.....	1
Myalgia, lumbar, chronic.....	1
Neuritis, chronic, sciatic, right.....	1
Neuritis, chronic, both shoulders, with atrophy of muscles of shoulder girdles.....	1
Syphilis, intractable, secondary.....	1

Tumor, cerebral, pontine process.....	1
Rheumatism, articular, chronic, left wrist, both knees and ankles.....	1
Defective hearing, both ears.....	1
Total.....	25

SURGICAL OPERATIONS.

Following is a résumé of the surgical work done during the year:

Name of operation.	Disease or injury.	Number of cases.	Successful.	Died.	Ether.	Local.
EYE.						
Extraction, combined operation.....	Senile cataract.....	1	1	.....	.....	1
Transplantation.....	Pterygium.....	3	3	.....	.....	3
Irido-capsulotomy, 1; iridectomy, 1.	Secondary cataract.....	2	2	.....	.....	2
Iridectomy.....	Leukoma.....	1	1	.....	.....	1
Curettage, 1; cauterization, 1.....	Corneal ulcer.....	2	2	.....	.....	2
NOSE.						
Adenectomy.....	Adenoids.....	5	5	.....	.....	5
Turbinectomy, partial, 1; turbinec- tomy, 1.	Hypertrophied turbinate.....	2	2	.....	.....	2
MOUTH AND PHARYNX.						
Tonsillectomy.....	Tonsillitis.....	26	26	.....	.....	26
ABDOMEN.						
Gastroenterostomy.....	Pyloric ulcer.....	2	2	.....	2	.....
Ferguson's modified, 2; Bassini's modified, 7.	Inguinal hernia.....	9	9	.....	9	.....
Suprapubic cystotomy.....	Septic cystitis.....	2	2	.....	2	.....
Appendectomy.....	Prostatic hypertrophy.....	8	8	.....	8	.....
Paracentesis, abdominal.....	Tumor of urinary bladder.....	1	1	.....	1	.....
Laparotomy, exploratory.....	Appendicitis.....	5	5	.....	5	.....
Excision of scar.....	Hepatic cirrhosis with ascites.....	1	1	.....	1	.....
Cholecystectomy.....	Suspected cholecystitis.....	1	1	.....	1	.....
Excision of sac.....	Old appendiceal scar.....	1	1	.....	1	.....
Gastroectomy, partial.....	Cholecystitis.....	1	1	.....	1	.....
Incision and drainage.....	Cholelithiasis.....	1	1	.....	1	.....
.....	Ventral hernia.....	1	1	.....	1	.....
.....	Hourglass stomach.....	1	1	.....	1	.....
.....	Appendiceal abscess.....	1	1	.....	1	.....
.....	Perinephritic abscess.....	1	1	.....	1	.....
.....	Abscess, huge, right hypochondrium.....	1	1	.....	1	.....
ANUS AND RECTUM.						
Excision.....	External hemorrhoids.....	1	1	.....	1	.....
GENITO-URINARY.						
Excision of sac, 3; paracentesis, 4.....	Hydrocele.....	7	7	.....	7	.....
Orchidectomy.....	Tubercular testis.....	1	1	.....	1	.....
Circumcision.....	Redundant prepuce.....	3	3	.....	3	.....
Incision of prepuce.....	Phimosis.....	5	5	.....	5	.....
Incision and drainage.....	Epididymitis, suppurative.....	1	1	.....	1	.....
.....	Lymphadenitis, inguinal, suppurative.....	2	2	.....	2	.....
SKIN AND CELLULAR TISSUES.						
Excision, partial.....	Periostitis, plantar surface os calcis.....	1	1	.....	1	.....
Ligation and excision.....	Varicose veins.....	1	1	.....	1	.....
Excision.....	Tumor (fibroma), arm.....	1	1	.....	1	.....
Incision with extraction.....	Bullet embedded in thigh.....	1	1	.....	1	.....
Excision of nail.....	Ingrown toenail.....	1	1	.....	.....	1
Cauterization, ulcer of face.....	Ulcer of face.....	1	1	.....	.....	1
JOINTS.						
Paracentesis.....	Synovitis, knee joint.....	1	1	.....	.....	1
AMPUTATIONS.						
Amputation of thigh, lower third.....	Gangrene of foot (Raynaud's disease).....	1	1	.....	1	.....
Amputation of toe.....	Perforating ulcer, great toe.....	1	1	.....	1	.....
Total.....		108	108	.....	63	45

LABORATORY.

Following is an abstract of the laboratory work done during the year:

Wassermann tests.....	784
Bacteriological examinations.....	57
Feces.....	82
Blood examinations.....	151
Milk examination (fat and bacteriological).....	79
Sputa.....	151
Phenolsulphonephthalein tests.....	5
Urine examinations.....	1,706
Tissues, sectional.....	114
Luetin tests.....	8
Urethral smears.....	25
Autogenous vaccines.....	31
Spinal fluid examinations.....	19
Moro's test.....	5
Complement fixation test for gonorrhea.....	52
Total.....	3,269

PERSONNEL.

The mean daily strength of the personnel on duty during the year was as follows:

Medical officers.....	8.09
Other officers (dental surgeon).....	.09
Post noncommissioned staff.....	.64
Medical Department and Quartermaster Corps.....	72.82
Army Nurse Corps.....	7.03
Mean aggregate.....	88.67

DEPARTMENT HOSPITAL, MANILA, P. I.

This hospital is the general hospital for the Philippine Department. It differs from the general hospitals in the United States in that it is not directly under the control of the Surgeon General, but owing to its geographic location it is under the authority of the department commander. It is situated on the corner of Calle Arroceros and Calle Concepcion on a plot covering about 4 acres, adjoining the medical supply depot. It consists of 30 separate buildings used for the following purposes: Receiving office, quarters for the officer of the day, administration building; eye, ear, nose, and throat clinic and X-ray department; isolation ward, officers; women, obstetric and operating rooms; five buildings for wards for enlisted men; tailor shop, night men's and cooks' quarters; post exchange; library and barber shop; general and noncommissioned officers' mess and supply rooms; isolation cells; carpenter shop; morgue; quartermaster's storeroom and corral together. The nurses are quartered in a long frame building on Calle Concepcion and are very comfortably fixed. There is one set of officers' quarters on the reservation, and it has been customary to assign it to the obstetrician. The buildings are of the old Spanish type, long, one-story, running out from a central patio or court. They require constant repairs of more or less extent to keep them in a serviceable condition. The plumbing and wiring throughout the hospital are old and obsolete in design, although the former has been

renewed in the ward toilets during the year. There can still be considerable improvement in the lighting system. All the steam, gas, and hot-water pipes are above ground, running just under the eaves of the porches; they are readily accessible for repairs but very unsightly. All buildings are well screened. The sewerage is surface, with outlet into the Pasig River. At high tide and heavy rains or floods the water backs up and floods the grounds.

During the year an artesian plant has been completed, consisting of a well bored to about 780 feet to a stratum of very potable water; a concrete structure over the well, housing an electrical pump, with a 10,000-gallon tank for storage. This water is slightly above the accepted standard of hardness, but has a very low bacterial count and no gas producers, and has replaced the distilled water formerly used in large quantities.

The sterilizing and water-heating plant of the operating room has been placed in a separate room. It is now housed in a concrete, tiled, and well-ventilated addition to the operating and anesthetizing rooms. This change has added much to the comfort of those on duty, as the former arrangement caused an almost unbearable heat when the sterilizers were in operation, and has also facilitated the handling of the instruments, etc., by the nurses. A new battery of steam and hot-water heaters has also been installed in this department.

During the year the installation of gas throughout the hospital to replace the steam appliances for sterilizing purposes was started, and by December 31 a steam boiler and a hot-water heater using gas as a fuel were erected and in working order, supplying steam for the kitchen of the general mess and hot water for the entire hospital. Each sterilizing apparatus throughout the hospital, in the wards, operating room, and laboratory, has been equipped with a gas burner; they have been thoroughly tested and found satisfactory in operation, though requiring somewhat more care to avoid injury to apparatus than the former method of supplying steam from a central plant.

Gas stoves for the general mess, sick officers' mess, and nurses' mess have been ordered from the States. When these are installed the entire steam and heating system of the hospital will be using gas.

The substitution of artesian for distilled water and of gas as fuel has permitted the closing of a steam and distilling plant running three 25-horsepower boilers. The latter are in bad condition and would have had to be replaced if the old system were continued. As now arranged each apparatus is always ready for use and can be operated independently of the others. The use of gas instead of coal is not only more convenient and cleanly, but will undoubtedly be more economical as well. The local gas corporation is at present enlarging its plant and promises a sufficient supply of gas.

The old motor ambulance, Keeton make, has been condemned and two late-model White cars procured. The orderly has been mounted on a motorcycle. A motor truck for heavy hauling to replace the present escort wagon, a light truck of the Ford model for market purposes, and a roadster of the same model to take the place of the Dogherty wagon are urgently needed to motorize the transportation of the hospital and increase its efficiency, and will greatly economize in the maintaining of this department.

The climate is tropical, with a rainy season starting about July, with typhoons of more or less severity. The rains last generally through November. The months of December, January, and February are very comfortable; a little warm during the day, with delightfully cool nights. It begins to get warm in March, and April, May, and June are hot and dry. There is very little malaria, but some dengue, sporadically and in small epidemics.

The following table shows the movement of the sick, together with the principal sources of admissions, during the calendar year 1916, civilians and Philippine Scouts being included:

	Officers and enlisted men.	Philippine Scouts.	Civilians.	Total.
Admissions:				
Command.....	70	.....	7	77
Transfer.....	1,081	61	32	1,174
Otherwise.....	104	.....	591	695
Remaining, 1915.....	55	7	18	80
Total.....	1,310	68	648	2,026
Dispositions:				
Duty.....	842	41	11	894
Died.....	7	1	14	22
Discharged for disability.....	1	21	.....	22
Transferred to Letterman General Hospital.....	347	.....	2	349
Transferred to other hospitals.....	33	2	6	41
Otherwise disposed.....	3	1	602	606
Remaining, 1916.....	77	2	13	92
Total.....	1,310	68	648	2,026

The following tabulation shows the deaths, with causes, for the year 1916:

Causes.	Enlisted men.		Civilians.	Total.
	American.	Philippine Scouts.		
Abcess of liver.....	1	.....	1	2
Aortic stenosis.....	1	.....	.....	1
Asphyxiation.....	.....	.....	1	1
Carcinoma of liver.....	.....	.....	1	1
Cerebral hemorrhage.....	1	.....	1	2
Colitis.....	.....	.....	1	1
Diphtheria.....	.....	.....	1	1
External causes.....	3	.....	1	4
Gastritis.....	.....	.....	1	1
Lymphosarcoma of mediastinum.....	.....	1	.....	1
Nephritis.....	.....	.....	1	1
Osteosarcoma of skull.....	.....	.....	1	1
Obstruction, bile duct.....	.....	.....	1	1
Peritonitis.....	1	.....	.....	1
Pneumonia, lobar.....	.....	.....	1	1
Subdural hemorrhage.....	.....	.....	1	1
Tuberculosis, pulmonary.....	.....	.....	1	1
Total.....	7	1	14	22

The following is a tabular statement of discharges on certificate of disability:

Causes.	In line of duty.	Not in line of duty.
Ankylosis, left elbow.....	1	.....
Ankylosis, right shoulder.....	1	.....
Arthritis, chronic, both knees.....	.....	1
Constitutional psychopathic state.....	.....	1
Dementia precox.....	.....	4
Flat feet.....	.....	1
Iritis, chronic, right.....	1	.....
Leprosy.....	2	.....
Neuritis, optic nerves.....	1	.....
Syphilis, tertiary.....	.....	1
Sprain, old, left ankle.....	1	.....
Tuberculosis, pulmonary.....	7	.....
Total.....	14	8

NOTE.—1 Enlisted man (white) and 21 enlisted men (Philippine Scouts).

The following tabular statement shows movement of the insane:

	Officers and enlisted men.	Philippine Scouts.	Civilians.	Total.
Transferred to Letterman General Hospital.....	53	.....	.....	53
Discharged on certificate of disability.....	.....	5	.....	5

An active surgical clinic is maintained at this hospital. The following is a condensed tabular statement of surgical operations during the year 1916:

	Officers.	Enlisted men.	Philippine Scouts.	Total.	Retired enlisted men.	Army Nurse Corps.	Civilians.	Total.	Grand total.
Cranium.....		1	.....	1	.....	.....	2	2	3
Eye.....	2	1	1	4	.....	.....	3	3	7
Ear.....		3	.....	2	.....	1	3	4	6
Nose.....		11	.....	11	.....	.....	2	2	13
Throat.....		15	.....	15	.....	.....	17	17	32
Face.....		4	.....	4	.....	.....	.....	.....	4
Neck.....							1	1	1
Upper extremity.....		5	1	6	.....	.....	3	3	9
Thorax.....		2	1	3	.....	.....	2	2	5
Abdomen (laparotomy).....	2	20	1	23	1	.....	19	20	42
Gynecological, external.....							22	22	22
Gynecological, internal.....							25	25	25
Lower extremity.....		6	1	7	.....	.....	5	5	12
Major (not included).....		18	2	20	.....	.....	10	10	30
Minor (not included).....		7	.....	7	.....	.....	1	1	8
Total.....	4	92	6	102	1	1	115	117	219

Operations of eye and ear clinic are shown above to complete the table, although it is a separate service. There were 74 deliveries at term in the obstetrical ward, with 2 stillbirths and 1 maternal death.

The following is a list of major operations requiring a general anesthetic, and not otherwise accounted for:

Cholecystostomy.....	1
Circumcision.....	3
Drainage of urinary abscess.....	1
Epididymotomy.....	2
Extirpation of fistulous tracts.....	1
Incision and drainage of abscesses.....	2
Ligation and excision (hemorrhoids).....	13
Ligation and excision (varicocele).....	2
Ligation and excision (varicose veins).....	3
Opening of dento-alveolar abscess.....	1
Posterior urethrotomy.....	1

Total..... 30

There were 8 minor operations for circumcision, requiring a local anesthetic, and not otherwise accounted for.

List of dressings for the calendar year ending Dec. 31, 1916:

Officers.....	1,842
Enlisted men.....	5,449
Civilians.....	6,733

Total..... 14,024

The following is a report of the hospital laboratory work done during the year:

Examination of—		Examination of—	
Blood.....	5,862	Feces.....	3,228
Urine.....	3,402	Smears and cultures.....	1,134
Sputum.....	1,884	Water examinations, bacteri-	
Pathological sections.....	158	ological.....	557
Animal injections.....	144	Chemical, biological, and mis-	
Wassermann reactions.....	4,739	cellaneous.....	690

The mean strength of the personnel on duty at this hospital for the year was as follows: Medical officers, 8; dental surgeons, 2; Army Nurse Corps, 24.03.

DETACHMENT MEDICAL DEPARTMENT.

Strength of detachment Dec. 31, 1916.

Sergeants, first class.....	6
Sergeants.....	5
Corporals.....	2
Lance corporals.....	2
Acting cooks.....	5
Privates, first class.....	50
Privates.....	26
Total.....	96

Gains during the year 1916.

By reenlistment.....	1
By transfer.....	36
Total.....	37

Losses during the year 1916.

Discharged by expiration term of service.....	1
Discharged by sentence general court-martial.....	2
Transferred.....	26
Died.....	2

Retired.....	2
Dropped.....	1
Furloughed and transferred to Army Reserve.....	1
Total.....	35

Present in the service Dec. 31, 1916.

Sergeants, first class.....	9
Sergeants.....	7
Corporals.....	4
Cooks.....	5
Privates, first class.....	60
Privates.....	13
Total.....	98

There were 83 courts-martial during the year, as follows:

General courts-martial (medical department).....	5
Summary courts-martial (medical department).....	35
Summary courts-martial (patients).....	43
Total.....	83

ARMY NURSE CORPS.

Strength Dec. 31, 1916.....	24
Gained Jan. 1 to Dec. 31, 1916.....	18

Lost during same period.

By discharge.....	0
By transfer.....	18
Strength Dec. 31, 1915.....	24

DEPARTMENT HOSPITAL, HONOLULU, HAWAII.

The department hospital is the general hospital for the Hawaiian Department. In addition to serving as a post hospital for the garrisons in and near Honolulu, cases of a serious nature and those requiring special treatment are sent here from Schofield Barracks.

The capacity of the hospital is 275, which number may be increased to about 400 beds, if emergency requires, by utilizing the porches.

The staff and equipment are such as to enable it to care for all classes of cases other than the few which require climatic treatment or unusual measures.

The buildings occupy a narrow strip of ground along the rim of a bluff which faces the south shore of the island and is about 400 yards distant therefrom. The location is attractive and, save for lack of space, desirable. An additional plot of ground of 12 acres adjoining on the west is needed badly to permit room for expansion. This plot, however, can be made available only by purchase or in exchange for Government lands. An appropriation for the purchase or congressional action sanctioning the exchange will be necessary for procuring this additional ground.

When considering the fact that but two and one-half years have elapsed since it was decided to build up the department hospital on its present site, wonderful progress has been made in developing from a small plant for a battalion post to its present state of efficiency. While the hospital is fairly complete as to buildings and equipment, it could be rendered more convenient and susceptible to expansion.

Among the needs cited by the commanding officer, some of which require the appropriation of funds, are the following:

Acquirement of additional land; a cold storage plant; shelter for transportation (already requested and favorably considered by higher authority, but shortage of funds has prevented appropriations therefor); quarters for medical officers and noncommissioned officers; screening of wards; a laundry; passageway, medical clinic to ward block; covered way, administration building to medical clinic; increased accommodations for Roentgen laboratory; landscape gardening; kitchen storerooms; extensions of service roads; disinfecting chamber; electric, silent-call signal system for private rooms; an impervious kitchen floor; raising the level of low lands to eliminate mosquito breeding, and to make land available for hospital purposes (gardens and pasture, with service buildings).

The following table shows the movement of the sick, together with the sources of admission during the calendar year 1916:

	Officers and enlisted men.	General prisoners.	Army Nurse Corps.	Civilians.	Total.
Admissions:					
Command.....	112	.....	4	.....	116
Transfer.....	1,330	1	.....	15	1,346
Otherwise.....	77	.....	.....	385	462
Remaining, Dec. 31, 1915.....	79	.....	.....	19	98
Total to be accounted for.....	1,598	1	4	419	2,022
Dispositions:					
Duty.....	1,351	1	4	.....	1,356
Died.....	9	.....	.....	7	16
Discharged for disability.....	1	.....	.....	.....	1
Transferred to Letterman General Hospital.....	153	.....	.....	3	156
Otherwise disposed of.....	4	.....	.....	396	400
Remaining, Dec. 31, 1916.....	80	.....	.....	13	93
Total accounted for.....	1,598	1	4	419	2,022

There were 16 deaths during the year. Of this number 1 was an officer, 8 enlisted men, 1 retired enlisted man, 6 civilians.

The following were the causes of deaths:

Apoplexy.....	1	Carcinoma.....	1
Drug poisoning.....	2	Fracture of skull.....	1
Gunshot wound.....	1	Heart disease.....	1
Kidney disease.....	2	Peritonitis.....	1
Pulmonary edema (secondary to gastric ulcer).....	1	Senility.....	1
Tuberculosis.....	2	Septicemia.....	2

But one enlisted man was discharged during the year on certificate of disability. This discharge was for disease contracted not in line of duty.

Forty-three insane patients were treated at this hospital during the year. Of this number 37 were enlisted men, 1 a retired soldier, and 5 civilians. The insane in the military service from this hospital are transferred to the Letterman General Hospital, San Francisco, Cal.

Four hundred and ninety-nine operations were performed, of which number 21 were officers, 299 enlisted men, 1 officer and 31 enlisted men of the Navy, 2 Army Nurse Corps, and 145 civilians.

The following tabular statement, condensed, will furnish an idea of the surgical work performed:

Cranium.....	2	Abdomen, laparotomy.....	80
Eye.....	20	Gynecological, external.....	6
Nose.....	48	Gynecological, internal.....	12
Ear.....	5	Lower extremity.....	36
Throat.....	102	Major operations not included.....	39
Face.....	4	Minor operations not included.....	105
Neck.....	6	Obstetrical operations.....	5
Upper extremity.....	23		
Thorax.....	6	Total.....	499

There was a total of 72 confinement cases cared for during the year.

The following is a statement of the laboratory work done for the period covered by this report:

Wassermanns.....	3,786	Stomach contents.....	94
Urine examinations.....	3,087	Malarial hunts.....	57
Gonococcus, smears for.....	1,808	Tissue sections.....	44
Feces.....	1,076	Inoculations of animals.....	39
Sputa.....	713	Serum agglutinations.....	34
Blood counts.....	603	Kidney-function tests.....	33
Miscellaneous.....	351	Blood cultures.....	24
Vaccines, autogenous, prepared..	179	Milk, fat examinations.....	23
Vaccines administered.....	177	Milk, bacterial examinations.....	9
Treponema pallida, examinations for.....	132	Autopsies.....	9
Spinal fluids tested:		Water, bacterial.....	9
Cell counts.....	53	Water, chemical.....	2
Gold chloride.....	6		
"Kaplan".....	6	Total.....	12,407
"Noguchi".....	53		
	118		

In the Roentgen laboratory 3,024 Roentgenograms were made, of which number 2,676 were plates and 348 dental films. In addition 3,184 Roentgenoscopic examinations were made.

The dentist on duty at this hospital reports 1,311 operations on the teeth and gums, 597 fillings, 7 bridges, 2 artificial dentures, and 10 fractures, making a total of 1,927.

The mean strength of the personnel on duty at the hospital for the year was:

Officers.....	11.46
Enlisted men.....	104.48
Army Nurse Corps.....	11.87
Mean aggregate.....	127.81

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PROVIDENCE HOSPITAL.

The act approved July 1, 1916, having appropriated \$19,000 for support and medical treatment of destitute patients in the city of Washington, D. C., under a contract to be made with Providence Hospital by the Surgeon General of the Army, for relief afforded was as follows:

Patients in hospital July 1, 1916	85
Admitted during the year	1, 338
Total number treated	1, 423
Average number admitted per month	119
Number remaining in hospital June 30, 1917	74
Total number of days' treatment afforded	32, 333
Average number of days' treatment per patient	22
Average number of patients treated per day	92
Longest term of treatment (days)	365
Shortest term of treatment (days)	1
Number of patients in hospital during the whole year	2

LABORATORIES.

ARMY MEDICAL SCHOOL.

The work in the bacteriological laboratories has been of a varied character, as shown in the following summaries:

TYPHOID-FEVER PROPHYLACTIC.

Vaccine prepared in the laboratory was distributed during the six months' periods as follows:

	June 30, 1916.	Dec. 31, 1916.	June 30, 1917.
Army.....	340,596	411,278	1,364,241
Navy.....	84,585	74,862	424,587
National Guard.....	33,466		
Various Government departments.....	1,148	1,981	684
Civilians and civilian institutions.....	536	14,440	927
Total.....	460,331	502,561	1,790,439

No changes have been made in the preparation of the typhoid vaccine, since our results at present in use have been all that could be desired.

PARATYPHOID-FEVER PROPHYLACTIC.

Mixed paratyphoid vaccine prepared in the laboratory was distributed during the six months' periods as follows:

	Dec. 31, 1916.	June 30, 1917.
Army.....	353,598	487,663
Navy.....		10,000
Civilians and civilian institutions.....		3
Total.....	353,598	497,666

Miscellaneous vaccines prepared and distributed to Army posts during the six months periods.

	June 30, 1916.	Dec. 31, 1916.	June 30, 1917.
Gonococcus:			
Prepared.....	2,750	8,569	4,681
Distributed.....	1,719	6,724	5,030
Staphylococcus:			
Prepared.....	422	1,536	1,232
Distributed.....	316	677	890
Streptococcus:			
Prepared.....	435	1,035	1,986
Distributed.....	200	628	1,296
Staphylococcus-aene:			
Prepared.....	300	876	925
Distributed.....	376	516	876
Staphylococcus-streptococcus prepared and distributed.....		24	
Colon prepared and distributed.....		144	400
Pertussis prepared and distributed.....		12	
Strepto-pneumo-sero-bact prepared and distributed.....		30	
Influenza bacillus, streptococcus pyogenes, pneumococcus, micrococcus catarrhalis, staphylococcus pyogenes aureus, staphylococcus pyogenes albus prepared and distributed.....		15	
Bile medium distributed to Army posts.....		101	129

VETERINARY VACCINE.

Vaccine against strangles and the complications of influenza in horses, prepared in the laboratory, was distributed to Army remount stations as follows: Six months ending June 30, 1917, 93,000 c. c.

Summary of clinical laboratory examinations of typhoid-fever cases.

	For the six-month period ending—		
	June 30, 1916.	Dec. 31, 1916.	June 30, 1917.
Examination of typhoid cases.....	184	214	115
Convalescents examined:			
Positive.....	1	1	.....
Negative.....	4	17	1
Suspected carriers or contacts examined:			
Positive.....	2	19	1
Negative.....	64	43	51
Widals:			
Positive.....	5	10	.....
Negative.....	27	17	12
Blood cultures:			
Positive.....	1	14	.....
Negative.....	29	38	38
Blood cultures from clots:			
Positive.....	.....	.....	.....
Negative.....	2	14	3
Examination of feces for <i>Bacillus typhosus</i> :			
Positive.....	.....	.....	2
Negative.....	60	105	20
Examination of urine for <i>Bacillus typhosus</i> :			
Positive.....	.....	2	.....
Negative.....	59	49	9
Examination of feces for <i>Bacillus dysenteriae</i> :			
Positive.....	.....	1	.....
Negative.....	.....	.....	6

No chronic bacillus carriers were detected during the fiscal year ending June 30, 1917.

Summary of clinical laboratory examinations.

	For the six-month period ending—		
	June 30, 1916.	Dec. 31, 1916.	June 30, 1917.
Blood counts:			
Red.....	62	15	16
White.....	66	15	17
Differential counts.....	72	18	14
Malaria:			
Positive.....	1	10	5
Negative.....	16	14	12
Blood cultures:			
Positive.....	2	1	.....
Negative.....	2	2	2
Urinalyses.....	98	363	662
Sputa for tubercle bacilli:			
Positive.....	5	1	4
Negative.....	40	17	19
Feces for parasites, etc.....	19	7	3
Water, bacteriological.....	64	33	20
Cultures of pus, exudates, etc.....	75	64	80
Animal inoculations for immune sera, etc.....	311	354	454
Histological examinations of operative and post-mortem tissues.....	207	217	206
Miscellaneous examinations, gonococcus, etc.....	102	53	50

Summary of clinical laboratory examinations—Continued.

	For the six-month period ending—		
	June 30, 1916.	Dec. 31, 1916.	June 30, 1917.
Wassermann examinations.....	2,519	1,935	4,547
Positive.....	315	145	209
Negative.....	527	647	546
Reexaminations.....	958	421	464
Tests made on survey.....	719	632	3,328
Examinations for <i>Treponema pallidum</i> :			
Dark-field microscope—			
Positive.....	3	1	13
Negative.....	3	2	6
By staining—			
Positive.....			1
Negative.....			5
Treatments with salvarsan.....	11	5	5
Treatments by bacterial vaccines.....	106	294	1,141
Spinal fluid:			
Globulin.....	199	75	136
Lange's test.....	199	75	136
Cell count.....	195	100	136
Milk.....	11	13	8
Gonococcus fixation tests.....	46	8	11

REPORT UPON WASSERMANN TESTS.

The Wassermann reaction has been performed continuously as a diagnostic test for syphilis. During the year ended June 30, 1917, the total number of Wassermann tests in the laboratory was 6,482, of which 885 were reexaminations; 3,960 were made in accordance with existing orders calling for a Wassermann reaction on applicants for commission, enlisted candidates for various service schools, recruits, etc.; and 1,547 examinations of new cases. Of the latter, 487 were of syphilis or suspected syphilis, and 1,060 were from cases suffering with diseases other than syphilis. In addition there were 19 tests made for gonococcus fixation, 219 spinal fluids in three dilutions.

The following table shows the actual results obtained in known syphilitics:

Stage of disease.	Number of cases.	Positive.	Negative.	Per cent positive.
Primary.....	137	71	66	51.82
Secondary.....	171	152	19	88.88
Tertiary.....	162	121	41	74.69
Latent.....	17	10	7	58.82
Total.....	487	354	133	72.69

CHEMICAL LABORATORY.

The following analyses and examinations were made:

Feces.....	3	Stomach contents.....	8
Intestinal concretions.....	1	Water.....	14
Cow's milk.....	12	Urine.....	1,075
Woman's milk.....	2		

X-RAY LABORATORY.

In this laboratory the work done in addition to instruction is represented by the following table:

X-ray:		Photographic:	
Radiographs.....	4, 448	Negatives.....	248
Dental films.....	1, 646	Prints.....	1, 332
Photomicrographs.....	52	Lantern slides.....	197
Treatments.....	164		

REPORT OF THE DEPARTMENT LABORATORY No. 1, SOUTHERN DEPARTMENT, FORT SAM HOUSTON, TEX., FOR THE CALENDAR YEAR 1916.

INTRODUCTION.

The volume of work done by this laboratory has been increasing each year since its establishment, due to the influx of troops into the department for duty on the border. During 1916 the increase was very marked, more particularly during the second half of the year, on account of the mobilization of the National Guard, the increase in the Regular Army, and the assignment of most of these units to duty on the border. During most of the second half of the year the number of troops in the department has been approximately 150,000.

In August a second department laboratory was established at El Paso, and in September a third at Nogales, Ariz., relieving to some extent the strain on this laboratory. Between July 1 and December 31, 1916, the district covered by this laboratory embraced that garrisoned by approximately 75,000 troops.

This laboratory, in addition to work for the department at large, is also the clinical laboratory for the base hospital at Fort Sam Houston, Tex., which averaged 482 patients daily from July 1 to December 31, 1916. The laboratory also administers all typhoid prophylaxis for the post, takes all blood specimens for Wassermann and other serological reactions for the base hospital, and has administered most of the autogenous and stock staphylococcus vaccines prescribed locally during the year. Some idea may be gained of the magnitude of the work done for the base hospital by citation of the following approximate daily averages of a few of the routine laboratory examinations for the past six months.

Blood counts, 11; examinations for malaria, 9; chemical and microscopical examinations of urine, 10; examinations of sputum for tubercle bacilli, 4; urethral smears for gonococci, 5; dark field examinations for *T. pallidum*, 3; blood cultures for organisms of the typhoid group, 6; and agglutinations, 7, as well as approximately 50 Wassermann tests twice a week.

The increase in the amount of work necessitated increases from time to time in the commissioned and enlisted personnel. Requests for additional personnel were always met very promptly by the department surgeon's office and by the commanding officer of the base hospital. From January to June, 1916, two officers of the Medical Corps were on duty in the laboratory, in June one additional medical officer was assigned as assistant, and in August still another.

On September 1 a field laboratory, under the direction of Maj. C. L. Cole, Medical Corps, of this laboratory, was ordered to the Brownsville district to handle the paratyphoid situation in the New York division, and the field laboratory continued its activities during the month of September.

The floor space of the present laboratory is entirely too limited to handle, without congestion, the amount of routine going through. This congestion, however, soon will be corrected, as a new laboratory building is now in process of construction and will be completed in the early part of 1917.

The following general summary of the activities of this laboratory from January 1 to December 31, 1916, is submitted:

	1916, first six months.	1916, sec- ond six months.	Total, 1916.	Total, 1915.
Blood examinations:				
Blood counts—				
Red.....	27	78	105	197
White.....	219	1,944	2,163	564
Differential.....	145	1,146	1,291	325
Haemoglobin estimation.....	47	57	104	215
Malaria:				
Positive.....	23	174	197	35
Negative.....	86	1,401	1,487	360
Blood culture (exclusive typhoid group).....	3	13	16	.....
Urine examinations:				
Total.....	1,139	1,762	2,901	2,178
Positive albumen, no casts.....	36	160	196	335
Positive casts, no albumen.....	22	70	92	412
Positive albumen and casts.....	250	21	271	167
Negative albumen and casts.....	831	1,511	2,342	1,264
Sputum examinations:				
Tubercle bacilli—				
Positive.....	24	62	86	73
Negative.....	108	590	758	612
Feces for parasites.....	150	187	337	337
Water analyses:				
Chemical.....	7	16	23	4
Bacteriological.....	18	57	75	15
Cultures of pus exudates, etc.....	42	28	70	80
Animals inoculated, etc.:				
Total.....	282	261	543	255
Amboceptor.....	64	16	80	.....
Research.....	18	26	44	.....
Vaccine.....	45	3	48	.....
Immune sera.....	6	9	15	.....
Complement.....	149	207	356	.....
Histopathological examinations.....	30	24	54	107
Urethral smears:				
Gonococci—				
Positive.....	140	613	753	140
Negative.....	106	266	372	175
Miscellaneous examinations.....	20	35	55	36
Wassermann on blood:				
Militia—				
Positive.....	1	348	349	.....
Negative.....	36	1,517	1,553	.....
Reexaminations.....	.....	89	89	.....
Regular troops—				
Positive.....	423	370	793	851
Negative.....	1,532	104	3,736	2,785
Reexaminations.....	1,344	503	1,907	2,714
Spinal fluid:				
Wassermann—				
Positive.....	13	26	39	14
Negative.....	59	221	280	24
Globulin increase.....	22	73	95	55
Colloidal gold.....	20	78	98	25
Cell count.....	24	56	80	56
Dark field, T. pallidum:				
Positive.....	22	73	95	32
Negative.....	80	421	501	114
Loctin tests.....	5	.....	5	22

	1916, first six months.	1916, sec- ond six months.	Total, 1916.	Total, 1915.
Rabies:				
Negri bodies—				
Positive.....	8	1	9	2
Negative.....	3	1	4	1
Antirabic treatment.....	50		50	
Milk analyses:				
Breast milk.....	7	4	11	8
Cow's milk—				
Chemical.....	83	69	152	91
Bacteriological.....	83	69	152	91
Cultures for diphtheria:				
Positive.....		99	99	20
Negative.....	12	303	315	77
Treatment with vaccines.....	612	382	994	
Typhoid vaccine administered, doses.....	551	1,731	2,282	
Paratyphoid vaccine administered, doses.....		27	27	
Necropsies.....	4	14	18	12
Stomach contents.....	10	37	47	23
Malt beverages (alcohol contents).....	1	16	17	17
Complement fixation tests:				
Glanders.....		18	18	
Gonorrhea.....		116	116	
Autogenous vaccines (prepared).....	37	22	59	49
Chemical blood analyses:				
Blood sugar.....		2	2	
Creatinine.....		2	2	
Typhoid-paratyphoid examinations:				
Blood cultures—				
Positive.....	2	163	165	4
Negative.....	17	1,028	1,045	25
Urine cultures—				
Positive.....	2	7	9	1
Negative.....	13	1,206	1,219	11
Feces cultures—				
Positive.....	3	13	16	3
Negative.....	36	1,326	1,362	13
Agglutination—				
Positive.....	14	358	372	4
Negative.....	34	1,104	1,138	

Comments somewhat in detail concerning certain features of the work of this laboratory during the year 1916 are considered desirable and follow.

Typhoid-paratyphoid.—During the early part of the summer of 1916 it became evident to this laboratory that both typhoid and paratyphoid might be expected to develop in troops entering Mexico, as one case of typhoid and two or three cases of paratyphoid A occurred in men on duty with the punitive expedition soon after its entry into Mexico. These men were invalided back to the base hospital at El Paso, Tex., with undetermined fevers, the diagnoses being established in this laboratory by cultural methods. In April, 1916, *B. paratyphosus* A was isolated by blood culture from Sergt. M. K., of the Twenty-eighth United States Infantry, stationed at Mission, Tex., and very soon thereafter (May 23, 1916) the same organism was isolated by blood culture from a civilian at Mission. In June a second case of paratyphoid A occurred in the Twenty-eighth United States Infantry. These three cases were diagnosed clinically by Maj. W. N. Bispham and C. L. Foster, Medical Corps, United States Army, as belonging to the typhoid-paratyphoid group.

In July, 1916, a brigade of the New York National Guard took station at Mission, Tex., and within a few weeks thereafter we began to recover *B. paratyphosus* A by blood culture from patients with undetermined fever transferred from Mission to the base hospital, Fort Sam Houston, Tex. This marked the beginning of a sharp but mild epidemic of paratyphoid A in the brigade of New York

troops at Mission. Paratyphoid A also appeared in other organizations of the New York division and in other troops stationed in the Brownsville district. A summary of the laboratory work done on suspected typhoid-paratyphoid fevers is presented below:

Number of examinations by month.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Blood cultures:													
Negative typhoid and paratyphoid.	1			3	7	6	33	131	575	194	55	40	1,045
Positive typhoid.							1	7	9	4	6		27
Positive paratyphoid A.				1	1		2	25	79	22	5	2	137
Positive paratyphoid B.							1	1					2
Clot cultures:													
Negative typhoid and paratyphoid.				1		2	13		1				17
Positive typhoid.						1							1
Positive paratyphoid A.						1							1
Positive paratyphoid B.													
Cultures from urine:													
Negative typhoid and paratyphoid.			3	1	1	8	38	59	566	279	206	58	1,219
Positive typhoid.					1				2				3
Positive paratyphoid A.					1				3		2		6
Positive paratyphoid B.													
Cultures from feces:													
Negative typhoid and paratyphoid.	3	2	7	1	7	16	61	92	515	287	243	128	1,362
Positive typhoid.					1								1
Positive paratyphoid A.					1	1			11		1		14
Positive paratyphoid B.								1					1
Agglutinations, patient's organism versus laboratory immune sera:													
Negative typhoid and paratyphoid ¹													
Positive typhoid.					2	1		9	11	4	6		33
Positive paratyphoid A.				1	3	2	2	25	93	22	8	2	158
Positive paratyphoid B.							1	1					2
Agglutinations, laboratory organism versus patient's serum:													
Positive typhoid.					2	1	2	1	3	3	4	1	17
Positive paratyphoid A.					1	1	1		52	47	50	7	159
Positive paratyphoid B.							2		3				5
Negative typhoid.	1		2	1	5	3	12	7	146	131	111	27	446
Negative paratyphoid A.			1	1	6	2	7	2	96	88	52	21	296
Negative paratyphoid B.			1	1	7	3	6	1	114	133	102	28	396

¹ Not tabulated; 1,000 or more.

Typhoid.—During the year 32 cases of typhoid were identified by this laboratory. The distribution of these cases, laboratory method of identification, and name, station, prophylactic record, etc., are shown in the following tables:

	Blood culture.	Agglutination.	Cultures from feces and urine.	Total.
Regular troops	2		1	3
Militia	19	4		23
Civilians	5	1		6

1916.—Typhoid report, department laboratory No. 1, Fort Sam Houston, Tex.

Organization.	Janu-ary.	Febru-ary.	March.	April.	May.	June.	July.	August.	Sep-tember.	Octo-ber.	Novem-ber.	Decem-ber.	Total.	
	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Culture.	Agglut-nation.
Regulars.....					1.....	.....	1.....	1.....	.....	.....	.....	.....	3.....	3
Militia.....													4.....	23
Civilians.....					1.....	1.....	.....	.....	.....	.....	.....	.....	6.....	6
Total.....					2.....	.....	.....	.....	.....	.....	.....	.....	27.....	32
Total.....					2.....	.....	.....	.....	.....	.....	.....	.....	32.....	32

Incidence typhoid in Regular troops, United States Army, 1916.

No.	Rank.	Com-pany.	Organization.	Station.	Date onset.	Date diagnosis.	Method diagnosis.	Prophylactic record.
1	Second lieutenant.....		Fifth Cavalry.....	Mexico.....	Apr. 30	May 30	Peets culture.....	Army vaccine: 3 doses West Point, N. Y., March or April, 1912.
2	Private.....	B	Ninth Infantry.....	Fort McIntosh.....	July 15	July 30	Blood culture.....	Not administered.
3	Private reservist.....		Quartermaster Corps.....	Fort Sam Houston.....	Aug. 13	Aug. 20	do.....	Army vaccine: 3 doses Mar. 6, 16-26, 1913, at Fort Thomas, Ky.

CIVILIAN.

No.	Rank.	Com-pany.	Organization.	Station.	Date onset.	Date diagnosis.	Method diagnosis.	Prophylactic record.
1	Civilian.....			Fort Clark.....	June 3	May 17	Blood culture.....	Not administered.
2	do.....			Fort Huachuca.....	June 18	June 18	do.....	Do.
3	do.....			Columbus, N. Mex.....	July 23	July 23	Agglutination.....	Do.
4	do.....			Fort Ringgold.....	Aug. 1	Aug. 1	Blood culture.....	Do.
5	do.....			Camp Wilson.....	Sept. 20	Oct. 6	do.....	Do.
6	do.....			Fort Sam Houston.....	Sept. 30	Oct. 2	do.....	Do.

MILITIA.

1	Sergeant.	M. D.	Second Kansas Infantry.	Eagle Pass.	July 7	July 22	Agglutination.	1 dose, Fort Riley, June 27, 1916; 1 dose, Eagle Pass July 6, 1916.
2	Private.	M. G.	Eighteenth Illinois Infantry.	Camp Wilson.	July 26	Aug. 8	Blood culture.	1 dose, Camp Wilson July 26, 1916
3	Sergeant.	C	Thirty-ninth New York Infantry.	Mission.	July 28	Sept. 4	do.	2 doses February, 1915, El Paso, not Army vaccine.
4	Private.	E	First Virginia Infantry.	Brownsville.	July 29	Aug. 24	do.	3 doses completed July, 1916.
5	do.	E	Third Indiana Infantry.	Liano Grande.	Aug. 6	Sept. 16	Agglutination.	Do.
6	do.	H	First Illinois Cavalry.	Brownsville.	do	Aug. 28	Blood culture.	3 doses completed March 16, Illinois State Board of Health vaccine.
7	do.	A	Signal Corps, New York.	McAllen.	Aug. 11	Aug. 19	do.	1 dose June 10, 1916, New York City.
8	Corporal.	F	Seventy-fourth New York Infantry.	Pharr.	Aug. 20	Aug. 27	do.	3 doses completed March, 1916.
9	Private.	F	do.	do.	Aug. 28	Sept. 10	do.	Do.
10	do.	E	Fourteenth New York Infantry.	Mission.	Aug. 29	Sept. 26	Agglutination.	3 doses completed August, 1915.
11	Corporal.	H	Twenty-second New York Engineers.	McAllen.	do	Sept. 6	Blood culture.	3 doses completed September, 1914.
12	Private.	H	Seventy-first, New York Infantry.	do.	Sept. 1	Sept. 10	do.	3 doses completed November, 1915.
13	Corporal.	E	Third Illinois Infantry.	Camp Wilson.	Sept. 10	Sept. 16	do.	3 doses completed March, 1916; Illinois Board of Health vaccine.
14	do.	H	Second Iowa Infantry.	Brownsville.	Sept. 11	Sept. 21	do.	3 doses July, 1916, Camp Dodge, Iowa.
15	Sergeant.	A	Fourth Illinois Infantry.	Camp Wilson.	Sept. 13	Sept. 22	do.	3 doses completed July, 1916.
16	do.	L	Third Iowa Infantry.	Brownsville.	do	Oct. 7	do.	3 doses completed May, 1916.
17	Private.	E	Third Texas Infantry.	Corpus Christi.	Sept. 16	Oct. 6	do.	3 doses completed June, 1916.
18	do.	K	First North Dakota Infantry.	Mercedes.	Oct. 10	Nov. 18	Agglutination.	3 doses completed July, 1916.
19	do.	B	First Iowa Field Artillery.	Brownsville.	Nov. 1	Nov. 10	Blood culture.	3 doses completed June, 1916, at Camp Dodge, Iowa.
20	do.		Fifth Maryland Infantry.	Eagle Pass.	do	Nov. 17	do.	3 doses completed July, 1916.
21	do.	H	do.	do.	Nov. 9	Nov. 19	do.	Do.
22	do.	M. D.	Third Wisconsin Infantry.	Camp Wilson.	Nov. 14	Nov. 25	do.	3 doses completed August, 1916.
23	do.	A	First Tennessee Infantry.	Eagle Pass.	Nov. 15	Nov. 27	do.	Do.

As will be noted, only 3 individuals in the regular service and 23 in the militia contracted typhoid, notwithstanding the fact that it was endemic all along the border. The typhoid immunization record of these patients was as follows:

	1912	1913	1914	1915	1916	None.
Regulars.....	1	1				1
Militia.....			1	3	18	1
Civilians.....						6

¹ One individual reported as having only one dose of prophylactic, and one as having two doses.

² Militiaman reported as having no prophylactic; was administered first dose on July 25, but was admitted to hospital with typhoid on the following day, July 26.

The typhoid-prophylactic record of the three cases occurring in Regular troops has been thoroughly investigated and is correct, but it has not been possible to authenticate the records of the patients belonging to the militia.

The particularly striking thing shown by the prophylactic records charted above, is the fact that no individual in the Regular Army who had been protected by prophylactic vaccination within the past three years contracted typhoid. These statistics, confirming those collected abroad, more particularly in the British service, indicate that typhoid immunization gives a very high degree of protection against typhoid for at least three years, after which time one tends to become slightly susceptible. This observation suggests that it might be desirable to revise General Orders No. 4, War Department, 1915.

Paratyphoid.—During 1916, 247 cases of paratyphoid A and 3 cases of paratyphoid B were identified by this laboratory. The distribution of these cases and laboratory method of identification is shown below:

	Blood cultures.	Agglutination.	Cultures from feces or urine.	Total 1916.
Regular troops:				
Paratyphoid A.....	17	3		20
Paratyphoid B.....				
Militia:				
Paratyphoid A.....	180	42	4	226
Paratyphoid B.....	2		1	3
Civilians:				
Paratyphoid A.....	1			1
Paratyphoid B.....				

A special report covering the paratyphoid situation from the laboratory point of view is in course of preparation and will be submitted in the near future.

Syphilis.—(a) Wassermann's on blood. During the year, 9,098 Wassermann reactions were done on blood specimens. The average number of routine tests per month, for the past six months, was 880. The distribution, according to character of reaction, of the total number of tests by months is shown in the following table:

Month.	Negative.		+ -		+		+ +		No test.		Total number.	Total positive.
	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.	Num-ber.	Per-cent.		+ and + +
1916.												Per cent.
January.....	370	67	50	9	37	7	62	11	32	6	551	18
February.....	413	77	34	6	14	3	55	10	21	4	537	13
March.....	421	76	38	7	21	4	53	10	18	3	551	14
April.....	323	62	46	9	33	6	90	17	32	6	524	23
May.....	466	88	102	13	51	6	115	14	68	8	805	20
June.....	590	70	79	9	45	5	95	11	39	5	843	16
July.....	630	76	41	5	27	3	48	6	32	10	828	9
August.....	845	78	26	2	36	3	70	7	113	10	1,090	10
September.....	768	82	34	4	25	3	45	6	68	7	940	8
October.....	667	78	33	4	55	6	54	6	53	6	852	12
November.....	502	71	44	6	39	6	36	12	36	5	707	18
December.....	619	74	38	5	55	7	36	10	37	4	535	17
Total.....	6,637	72	565	7	438	5	850	10	599	6	9,098	15

This table is presented mainly for the purpose of showing the number and percentage of specimens received by the laboratory in such condition that it was impossible, for one reason or another, to submit a report. It will be noted that no reaction could be reported on 599 of 6 per cent of the total number of specimens received during the year. The specimens falling in this class consisted of these "broken in mail," burned, haemolyzed, and anticomplementary.

The percentage of specimens of this class is altogether too large, and could be reduced very materially by the devotion of some attention to the sealing of capsules properly to prevent burning and to packing the capsules properly for mailing. It is the experience of this laboratory that specimens of whole blood in capsules, even though apparently in perfect condition, not infrequently are anticomplementary when tested. This applies more particularly to specimens in transit in the mails for a considerable length of time. The substitution of separated serum for whole blood in such instances enables us almost invariably to report satisfactory reactions. At our request the base and camp hospitals in our district are now forwarding separated serum exclusively, and the influence of this procedure on the number of specimens received in an unsatisfactory condition is very clearly evidenced by the marked reduction in the percentage of unsatisfactory specimens received—September, 10 per cent; December, 4 per cent. This method of forwarding specimens for Wassermann and other serological examinations should, in our opinion, be adopted when feasible, as a routine measure throughout the service.

We have tabulated separately the results of the Wassermann test for the National Guard and for the United States Army. Our records show 1,865 routine initial tests on soldiers in the National Guard and 2,274 on soldiers in the regular service during the period July 1 to

December 31, 1916, and we have tabulated the following summary of the number of syphilitics in each group:

	Regular troops.		National Guard.	
	Number.	Per cent.	Number.	Per cent.
Initial examinations:				
Positive.....	370	16	348	19
Negative.....	1,904	84	1,517	81
Reexaminations:				
Positive.....	109	22	20	23
Negative.....	394	78	69	77

The above figures indicate on their face that syphilis is more prevalent in the National Guard on duty in this department (19 per cent of those examined) than in regular troops (16 per cent of those examined).

We have made Wassermann examinations on one group of men, applicants for enlistment, the results of which may be considered as indicating the prevalence of syphilis in presumably normal individuals accepted as recruits.

Of 251 applicants for enlistment, 5 or 2 per cent gave a positive reaction. In 1915 in a total of 123 such cases examined 13 or 10.5 per cent were positive. No conclusions of any value can be drawn from such statistics until many thousands of such examinations have been analyzed.

On account of the frequently changing personnel in the department and the lack of familiarity with Medical Department forms on the part of the commissioned officers of the Medical Corps of the National Guard and the Medical Reserve Corps, this laboratory has received a very large number of Wassermann requests, and a still larger number of Wassermann cards (Form 97), improperly or incompletely filled in or not made up at all (596 cards incompletely filled in were received between October 1 and December 31, 1916). For this reason we have been unable to compile from the Wassermann cards any statistics in which we personally have any confidence. Such information as we have been able to compile is presented below:

Known cases of syphilis.	Number of cases.		Number positive.		Number negative.		Percentage positive.	
	Regulars.	Militia.	Regulars.	Militia.	Regulars.	Militia.	Regulars.	Militia.
Primary.....	137	96	56	50	81	46	41	52
Secondary.....	538	154	432	123	106	31	80	80
Tertiary.....	132	51	94	37	38	14	71	72.6
Latent.....	73	37	65	37	8	.....	89	100
Hereditary.....	6	1	5	.....	1	1	83	.....

(b) *Spinal fluids*.—As a matter of routine, the following examinations are carried out on spinal fluids: Cell count, Wassermann (4 dilutions), globulin increase, and colloidal gold reaction. This group of reactions has been done on about 100 spinal fluids during the year and the results reported have been of very definite value to the clinicians.

(d) *Dark-field examinations.*—During the year 596 lesions, suspected of being syphilitic, were examined by the dark-field method, and *Treponema pallidum* was found in 16 per cent. It is our opinion that this very valuable laboratory aid to the diagnosis of syphilis in its very early stages should be made a matter of routine at all military stations where facilities (electricity or gas) exist for carrying it out.

Diphtheria.—It will be noted from the table summarizing the work of this laboratory that a very considerable number of throat cultures were examined for *Bacillus diphtheria*, with a large percentage of positives—99 positive, 315 negative. Practically all this material came from the camp of National Guard troops at Llano Grande, Tex. Cases of diphtheria of a mild type began to appear there in October and persisted until the latter part of November. During October we reported on 169 throat cultures, 57 of which were positive for *Bacillus diphtheria*. In November, 113 throat cultures were examined, with 25 positive. The sanitary inspector at Llano Grande informed us that many of the positive cases were contacts and carriers without clinical symptoms.

When cases of diphtheria began to appear in this camp this laboratory forwarded the camp sanitary inspector a supply of diphtheria toxin, for use in performing the Schick test on contacts, and it is our understanding that this test gave quite satisfactory results. This laboratory is indebted to the laboratory of the New York City board of health for a supply of diphtheria toxin for these tests. The Schick test is a reliable one, quickly and easily performed on large numbers of people at an insignificant cost, and its use during epidemics will eliminate nonsusceptibles, thus curtailing very materially the expense incident to the purchase of diphtheria antitoxin for immunization purposes. It is recommended that arrangements be perfected for keeping a potent supply of this toxin on hand at each department laboratory for emergency supply to posts or camps when epidemics of diphtheria threaten.

Malaria.—During the year 197 microscopical examinations for malarial parasites were positive. The distribution of the cases and number of examinations by months was as follows:

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Positive.....	1	-----	-----	-----	13	9	14	26	66	51	14	3	197
Negative.....	20	1	7	11	31	17	100	313	424	360	117	87	1,475

Practically all the cases occurred in troops making up the twelfth division at Camp Wilson, Fort Sam Houston, Tex. A study of the distribution of the cases by organizations and the movements of the units making up the division demonstrated very clearly that the disease was being contracted on maneuvers in the vicinity of New Braunfels, Tex.

It is also probable that malaria may be contracted at the Leon Springs Military Reservation, but it is our experience that it but seldom or practically never originates at Fort Sam Houston.

Dysenteries.—Dysentery of the protozoal type was but rarely observed in this laboratory. A few cases of bacillary dysentery have

been identified by isolation of the specific organism or by agglutination reactions.

During the past summer an organism in almost pure culture was isolated by Lieut. Schule from the stools of three or four cases of clinical dysentery. The organisms apparently belonged to the dysentery group, but did not conform to the cultural characters or agglutination reactions of any one of the organisms of the dysentery group heretofore described. Stock cultures of these organisms are being saved, in the hope that a decrease in necessary routine work may permit their investigation at some time in the near future.

Vaccines.—A very considerable amount of attention has been given during the year to the preparation and administration of vaccines and to the observation of their effect on cases of furunculosis, certain selected cases of skin diseases, and some chronic lesions, the etiology of which could be traced to the presence of some of the more common microorganisms. Occasional striking results have followed the use of the vaccines in a limited number of the cases, and good results have followed in many.

Water analyses.—During 1916, 23 complete chemical analyses of water were done, as compared with four in 1915. Analyses of this kind require a very considerable amount of special apparatus, constant attention to the standard solutions, trained technicians, and careful supervision. The results obtained from chemical analyses frequently are indefinite, their interpretation difficult or impossible, and altogether they appear to be of but little practical value as compared with bacteriological analyses. The technique for bacteriological analyses of water is simple and easily carried out, and the results obtained usually are quite definite and clear cut.

In view of the facts cited above, it is recommended that the routine chemical analyses of water supplies be discontinued and that chemical examinations be confined to ones desired for special purposes.

Seventy-five bacteriological examinations of water were made in 1916, as compared with 15 for the previous year. The objection to this method of analysis is that the samples usually are in transit to the laboratory for at least 24 hours, during which time they are not packed in ice. It is our custom to omit the colony counts on such samples and to do only the presumptive test for organisms of the colon group, subsequently identifying any gas producers present. It has been our experience that organisms of the colon group are not ordinarily overgrown in 24 to 48 hours, and we have even identified organisms of this group in samples of water from Mexico that were in transit for a period of six days.

A number of the samples examined in this laboratory have shown a high percentage of gas by the presumptive test, and members of the colon group practically always have been identified. Many such samples were drawn from irrigation canals, rivers, and other collections of water exposed to the droppings of range cattle. If the source of contamination is from the excreta of range cattle rather than from the excreta of human beings, the presence of organisms of the colon group is believed to be of no particular sanitary significance.

Milk analyses.—The routine procedure for the chemical and bacterial examination of milk samples, instituted in this laboratory in the fall of 1915, has been continued throughout 1916. During 1915 three posts were designated by the department commander from

which milk samples were to be forwarded once each month. During 1917 it is the intention to extend this service to all the more important permanent and semipermanent posts in the department.

Chemical examination of malt beverages.—During 1916 this laboratory made chemical examinations of 17 specimens of malt beverages to determine the alcohol content. As these beverages are handled by post exchanges and presumably have an alcohol content of approximately 2 per cent by volume, it may not be amiss to invite attention to the results of some of the examinations made by this laboratory. We have found that the alcohol content of some of these beverages varies from time to time and frequently is higher than is permissible by law. As an example of the widest degree of variation in samples of the same product, the following results are cited:

Date of examination.	Per cent of absolute alcohol.		Date of examination.	Per cent of absolute alcohol.	
	By weight.	By volume.		By weight.	By volume.
Nov. 2, 1915.....	1.61	2.08	Feb. 27, 1916.....	2.062	2.60
Nov. 4, 1915.....	1.61	2.03	Sept. 6, 1916.....	1.99	2.51
Do.....	5.77	7.32	Sept. 10, 1916.....	1.94	2.44
Nov. 11, 1915.....	1.94	2.44	Sept. 30, 1916.....	5.96	7.51
Do.....	1.87	2.35	Oct. 2, 1916.....	2.34	2.95

The samples in this series were identical as to manufacturer's bottle, bottle cap, and label, and were selected from the stock sold by post exchanges.

Laboratory animals.—Climatic conditions in Texas are conducive to the rearing of guinea pigs, and this laboratory, for the past two years, has had no difficulty in raising a supply, more than adequate to meet its demands. During 1916 more than 300 pigs were required for complement alone, and between August and December, 1916, 238 pigs were shipped to the department laboratories at El Paso, Tex., and Nogales, Ariz.

Early in December, 1916, an epidemic disease appeared among the guinea pigs that killed between 150 and 200 of the best and oldest stock. The organism responsible for the epidemic was definitely proven to belong to the paratyphoid group, and biologically was more nearly akin to paratyphoid B than to paratyphoid A. The epidemic was finally controlled by segregation of the animals into small groups, isolation of those ill, and thorough disinfection of infected pens. As the infection was practically confined to one room—that containing the breeding females—all animals in this room were immunized with a prophylactic vaccine. During the height of the epidemic, a number of mice and some cockroaches, that had been in the habit of preying on the food of these animals were found dead or ill, and an organism apparently identical with that isolated from the guinea pigs was recovered from both sources.

New routine tests.—During the year, two new diagnostic methods have been introduced as routine tests, namely, the gonococcus fixation test and chemical blood analyses. The gonococcus complement fixation test was begun in September, and during the last four months of the year 166 such tests were done.

The recently developed methods of chemical analyses of the blood, of demonstrated practical value, such as blood sugar estimations, creatinine determinations, etc., recently have been added to our list of routine tests offered.

Supplies issued on request.—There was a very marked increase in the number of requisitions for biological products and laboratory supplies during 1916. In this department it is customary for the department laboratory to supply, on direct requisition, most of the biological products ordinarily used—typhoid, paratyphoid, gonococcus, stock staphylococcus, streptococcus, acne, and smallpox vaccines—and an extraordinarily large amount of these products necessarily were used during the year.

A summary showing the amount of biological products, laboratory supplies, etc., issued by this laboratory to medical units in the department is submitted below:

Articles issued posts and commands on requisition.	Units.	1916, first six months.	1916, second six months.	Total, 1916.	Total, 1915.
Typhoid vaccine.....	c. c.....	69,483	209,180	278,663	5,040
Paratyphoid vaccine.....	do.....		61,669	61,669	
Gonococcus vaccine.....	do.....	294	2,102	2,396	640
Smallpox vaccine.....	Units.....	15,138	65,843	80,981	10,390
Antitetanus serum.....	Packages.....	35	35	70	
Mailing cases.....	Number.....	1,573	5,265	6,838	1,280
Schlick tests.....	do.....		210	210	
Containers for water, chemical.....	do.....	26	108	134	
Containers for water, bacteriological.....	do.....	5	27	32	
Containers for milk, bacteriological examination.....	do.....	50	78	128	
Containers for feces.....	do.....	4	494	498	
Containers for urine.....	do.....	6	20	26	
Containers for sputum.....	do.....	4	40	44	
Articles prepared in laboratory and issued on requisition.					
Staphylococcus vaccine.....	c. c.....	288	650	938	578
Bile medium.....	Bottles.....	196	2,917	3,113	86
Bile medium, in bulk.....	Liters.....		14	14	
Loeffler's blood serum.....	Tubes.....	54	604	658	226
Diphtheria culture tubes.....	Number.....		637	637	
Russell's double sugar media.....	Tubes.....		2,060	2,060	
Miscellaneous culture media.....	do.....	58	48	106	96
Wright's capsules.....	Number.....	3,378	5,160	8,538	6,182
Serum capsules.....	do.....		149	149	
Spinal fluid tubes.....	do.....		39	39	
Miscellaneous stains.....	C. c.....	860	1,950	2,810	22
Miscellaneous articles.....	Number.....	978	4,515	5,493	

The issue of biological products by this laboratory, on requests by telegraph or by mail, to all medical department units in the department has simplified and expedited the receipt of such supplies when urgently needed. It is suggested that each department laboratory could, to great advantage, be designated as a depot for the issue of many of the standard biological products.

Special work.—The activities of this laboratory are of necessity concerned primarily with the class of practical laboratory work that tends to aid the clinician. With the limited commissioned and enlisted personnel and the cramped space available it has been impossible and impracticable to attempt much more than routine. New laboratory methods of proven value—spinal fluid examinations, chemical blood analyses, bacterial complement fixation tests—are being introduced as routine from time to time, and when sufficient

material has been collected, their value to the military service will be made the subject of special reports. If special lines of investigation are to be undertaken, and it is our opinion that work of this character should form a very appreciable part of the work of the department laboratory, it will be necessary to increase the permanent personnel, both commissioned and enlisted. This particular laboratory should have at least three commissioned medical officers under normal conditions. Under the abnormal conditions existing at the present time, four medical officers are required to do the routine work with scarcely any time for special work.

During the year 1916, a number of special lines of investigation were taken up but none of them could be carried to completion, as the amount of routine work being done prevented any consecutive work along special lines. Among the investigations undertaken, the following may be mentioned:

Tentage preservation.—The infection with molds of tentage in the Brownsville district has resulted in the loss of a very considerable amount of tentage, and Maj. Cole, of this laboratory, for several months has been investigating in an experimental way the prevention of such infections by impregnation of the tentage with chemicals of various kinds. It is believed that these investigations will prove to be of value to the military service and that a practical and economical method of tentage preservation will be worked out.

Paratyphoid.—The occurrence of a considerable number of cases of paratyphoid fever in the department has enabled this laboratory to gain a considerable amount of information of practical value relative to the organisms of the typhoid-paratyphoid group. A series of papers covering the work are in course of preparation and will be submitted when completed.

Milk analyses.—A series of chemical and bacteriological tests for milk supplies that appeared to be applicable to service conditions were tried out practically during 1916. Particular attention is now being paid to a comparison of the Stewart-Slack and the Prescott-Breed methods of direct bacterial count. The direct counts are also being checked against the colony counts in the milk samples from Fort Sam Houston. The results of these investigations will be made the subject of a special report when sufficient material has been collected.

REPORT OF DEPARTMENT LABORATORY NO. 2, SOUTHERN DEPARTMENT, MILLS BUILDING, EL PASO, TEX., FROM DATE OF OPENING, JULY 23, 1916, TO DECEMBER 31, 1916.

In accordance with letter of instructions from department surgeon, headquarters Southern Department, Fort Sam Houston, Tex., dated December 18, 1916, I herewith submit a report of the work done in Department Laboratory No. 2, Mills Building, El Paso, Tex., from the date of the opening of the laboratory, July 23, 1916, to December 31, 1916.

When the militia was ordered to the border this laboratory was established at the request of the department surgeon to care for the laboratory work requested from the district included in the area west of the Big Bend district to the Pacific, including the punitive expedition in Mexico. Later Department Laboratory No. 3 was estab-

lished at Nogales, Ariz., taking over that portion of the work included in the territory from Nogales to the Pacific.

At first it was intended that Department Laboratory No. 2 should be established at Fort Bliss, Tex., in conjunction with Base Hospital No. 2 at that place, but there being no suitable building available, and as it would have taken some weeks, or even longer, to erect a suitable structure, rooms were hired for the laboratory on the twelfth floor of the Mills Building, which are almost ideal for the purpose. By securing permission to have the complete equipment of the department laboratory of the Central Department at Fort Leavenworth (of which I had charge at the time the order for the establishment of this laboratory, was issued) sent to El Paso by express, the equipment arrived at that city on July 12, 1916, the order directing the establishment of the laboratory being issued on June 30, and on July 23, the equipment having been installed, the laboratory was opened for work, although it was several weeks later before the shelving necessary for the equipment was completed.

On my recommendation, approved by the commanding officer of Base Hospital No. 2, and the department surgeon, authority was granted by the War Department on October 21, 1916, making the laboratory a separate command under the headquarters of the Southern Department. This change was recommended because it would greatly simplify and expedite administrative measures, and it has resulted in greater efficiency and has relieved the base hospital of considerable administrative work connected with the laboratory. It is believed that department laboratories should, wherever possible, be separate commands, directly under department headquarters. This will always work for efficiency and prevent the detailing of the officers and men assigned to them away from the laboratory, by local commanders, which, in the past, has greatly injured the work of some of these laboratories, as I know from personal experience.

Owing to the large amount of work that was sent to the laboratory as soon as it was ready for operations, I requested that Maj. Henry J. Nichols, Medical Corps, United States Army, in charge of the laboratory at the Letterman General Hospital, San Francisco, Cal., and Capt. Felix R. Hill, Medical Corps, United States Army, on duty at El Paso, be assigned to the laboratory, and Maj. Nichols reported upon August 7, 1916, and Capt. Hill upon September 17, 1916. The enlisted personnel consists of two sergeants, two corporals, and two privates first class of the Medical Department.

From July 23, 1916, to December 31, 1916, 8,545 examinations have been made in the laboratory, distributed as follows:

TABLE 1.—*Examinations made in Department Laboratory No. 2 from July 23, 1916, to Dec. 31, 1916.*

Character of examination.	Number.	Results.
Complement fixation tests:		
1. Wassermann tests.....	4,231	
2. Tuberculosis tests.....	110	
3. Gonococcus tests.....	62	
4. Glanders tests.....	12	
Total.....	4,415	
Feces for endamæba histolytica.....	1,526	Positive, 164.
Blood cultures for typhoid group.....	477	Positive.—Typhoid, 14; paratyphoid A, 99; paratyphoid B, 1.
Feces cultures for typhoid group.....	668	Positive.—Typhoid, 0; paratyphoid A, 5; paratyphoid B, 1.
Bile cultures (duodenal contents) for "carriers".....	26	Positive.—Typhoid, 1; paratyphoid A, 1.
Urine cultures for typhoid group.....	85	
Agglutinations for typhoid group.....	246	
Blood cultures, miscellaneous.....	78	
Diphtheria cultures.....	457	Positive, 37.
Water, bacteriological.....	80	
Sputum for B. tuberculosis.....	52	Positive, 10.
Malarial plasmodia.....	15	Positive, 2.
Examination for spirocheta pallida.....	47	Positive, 11.
Examinations for gonococci.....	22	Positive, 10.
Examinations for bacillus of Ducrey.....	12	Positive, 10.
Examination of meningitis contacts.....	29	
Spinal fluid for meningococcus.....	9	Positive, 7.
Cultures for pneumococcus.....	5	Positive, type 1, 2.
Urine, chemical and microscopical.....	66	
Examinations for negri bodies.....	3	Positive, 1.
Examinations for bacillus mallei.....	5	Positive, 5.
Milk, chemical and bacteriological.....	5	
Stomach contents, chemical.....	20	
Stomach contents for strychnine.....	1	Positive, 1.
Whisky for strychnine.....	1	Do.
Animal inoculations.....	86	
Miscellaneous examinations.....	120	
Total.....	8,546	

In addition to the examinations made in the laboratory the following supplies have been furnished the various commands in the district supplied by the laboratory:

TABLE 2.—*Supplies furnished by department laboratory No. 2 from July 23, 1916, to Dec. 31, 1916.*

Articles supplied.	Amount supplied.	Articles supplied.	Amount supplied.
Wright's capsules and tubes for Wassermann test.....	5,500	Antimenigitis serum (Flexner's), cubic centimeters.....	400
Urine containers.....	135	Colon vaccine..... cubic centimeters..	36
Feces containers.....	758	Gonococcus vaccine..... do.....	846
Water containers (bacteriological).....	105	Paratyphoid vaccine..... do.....	1,728
Sputum bottles.....	142	Staphylococcus vaccine..... do.....	576
Bile medium, bottles of.....	600	Staphylococcus vaccine..... do.....	60
Blood serum, Loeffler's, tubes of.....	657	Streptococcus vaccine..... do.....	84
Antidysentery serum (Flexner's), cubic centimeters.....	3,000	Typhoid vaccine..... do.....	2,200

Complement fixation tests.—In all, 4,415 complement fixation tests have been made for the diagnosis of syphilis, tuberculosis, subacute and chronic gonorrheal infections, and glanders, divided as follows: Wassermann tests, 4,231; tuberculosis, 110; gonorrhea, 62; and glanders, 12.

The Wassermann test.—During the time covered by this report there have been 4,231 Wassermann tests made in the laboratory, of which

929 were reexaminations made largely for the determination of the results of the treatment, and 3,302 were original examinations. Of the latter, 877 were upon cases diagnosed as probable syphilis or suspicious of that disease, while 2,245 were made upon patients suffering from other diseases but in whom it was desired to eliminate syphilis.

Of the 877 tests made upon patients in whom syphilis was diagnosed or strongly suspected, 694 gave a positive reaction, or practically 80 per cent. These cases were divided, as regards the stage of the disease, as follows:

TABLE 3.—*Results of Wassermann tests made in department laboratory No. 2 from July 23, 1916, to Dec. 31, 1916.*

Stage of disease.	Number of cases.	Positive.	Per cent.	Negative.	Per cent.
Primary	213	174	81.6	39	18.3
Secondary	341	323	94.6	18	5.2
Tertiary	85	67	78.8	18	21.1
Latent	238	130	54.6	108	45.3

Continued experience with the Wassermann test, employing the technique which I have followed since 1913, has resulted in firmly convincing me of its great value in the diagnosis and as a control of the treatment of syphilis. The technique used is that now employed in most of the Army laboratories and has stood the test of years, and it is believed is as nearly perfect as it is possible for the technique of any test to become. Some changes have been advocated, but it is not thought that the method should be changed in its essential features. Especially is the adoption of a sheep hemolytic system instead of the human hemolytic system now in use deprecated, for while it may be less difficult to work with in some respects, the gain in this direction is more than compensated for in the greater accuracy of the human hemolytic system, which is certainly the ideal one for complement fixation tests upon human blood serum. The fact that human serum sometimes contains a considerable amount of natural amboceptor against sheep cells is alone sufficient to decide in favor of the use of the human system, and recent work has shown that this factor is one that can not be overlooked or slighted. The most recent observations are all in favor of the use of a human hemolytic system in complement fixation work upon human blood, and mere ease of preparation of amboceptor or other retechnical procedures should not weigh against the use of this system. It has been used by the writer since 1913 with the greatest satisfaction, and it is believed that it should invariably be employed in the Wassermann test if the greatest degree of accuracy is desired in the application of this test.

Complement fixation in tuberculosis.—One hundred and ten complement fixation tests for tuberculosis have been made, of which 65 were in cases diagnosed as suspicious of the disease and 45 were in cases suffering from other diseases in which it was desired to eliminate tuberculosis. Of the 65 suspected of tuberculosis, or so diagnosed, 59 gave a positive reaction, or a little over 90 per cent. In only six of the cases giving a positive reaction could tubercle bacilli be demonstrated in the sputum at the time the test was made, although many of the cases have since shown the organism in the sputum. Of the

six cases diagnosed as suspected tuberculosis that reacted negatively, only two showed the bacilli in the sputum, the remainder still being undetermined as tuberculous cases. The two cases showing tubercle bacilli in the sputum that reacted negatively were rapidly advancing cases, and it has been my experience with this test that in such cases the reaction is frequently negative, owing apparently to the lack of formation of the substance or substances giving the reaction because of the overwhelming infection.

The antigen used in these tests has been a polyvalent alcoholic extract of several strains of the tubercle bacillus prepared as described in my article published in the American Journal of Medical Sciences for December, 1915. A human hæmolytic system has been used, and the general technique of the test is the same as employed in the Wassermann test. The results obtained since the publication of my original article have been collected and will be published in an early number of the Journal of the American Medical Association.

The complement fixation test for the diagnosis of tuberculosis has proven, in my experience, a most valuable measure for the detection of early cases of the disease and as an index of recovery from the infection. Since the publication of the paper referred to, a great deal of work has been done upon the subject by different investigators and all of it has been confirmatory of the value of this test in the diagnosis of the disease. I believe that it will soon be as widely used as is the Wassermann test in the diagnosis of syphilis and that it has already been placed upon a practical basis and should receive much more attention than it has so far received by those who are especially interested in the tuberculosis problem.

Complement fixation in gonorrheal infection.—This test has been made upon 62 patients in whom some form of subacute or chronic gonorrheal infection was suspected. Positive results have been obtained in only three instances and my experience with the test has been distinctly unfavorable so far as its being of any very great value in diagnosis is concerned. The antigen used has been a polyvalent one carefully prepared and titrated, and the failure of the test to give positive reactions in many cases undoubtedly gonorrheal in origin can not be explained by a poor antigen.

Complement fixation in glanders.—The complement fixation test for glanders has been made upon 12 suspected horses with a positive result in 8 cases. The horses giving a negative result presented only very slight lesions of the disease or the lesions were those of another condition. This test appears to be a very satisfactory diagnostic procedure when there are lesions of the disease present but it is useless if subcutaneous injections of mallein have been given within two months previously, as such animals will give a positive reaction with the test.

Examinations for endamæbic dysentery.—During the time covered by this report, 1,526 examinations of feces have been made for *Endamæba histolytica*, and 164 cases were found positive. These examinations were necessitated because of an outbreak of this disease in the camps in and around El Paso between August, 1916, and November, 1916. A special report has been prepared and forwarded dealing with the epidemiology of this epidemic, but the fol-

lowing points may prove of interest to the military surgeon who has to handle similar outbreaks of the disease.

A careful study of the epidemiology of endamœbic dysentery, as it occurred at El Paso, resulted in the conclusion that most of the cases originated from "carriers" and the disease was transmitted by flies. Several true "carriers" or, as they are often termed, "contact carriers" of cysts of *Endamœba histolytica* were discovered during routine examinations of feces and most of the patients having the disease became "convalescent carriers" of the infection. Thus, of the 115 soldiers having endamœbic dysentery, and observed for as long a period as two months, no less than 86, or practically 75 per cent, became "convalescent carriers" of the infection. In practically all of these cases one course of 12 grains of emetine hydrochloride, in daily doses of one grain, was given, and in many of them this course was repeated. That the disease was transmitted by flies in the majority of instances is proven by the following facts:

1. The number of cases of dysentery increased with the increase in the number of flies in the camps and the new infections ceased with the disappearance of the flies.

2. The greatest number of cases occurred in camps where the flies were most numerous.

3. Conditions regarding temperature, water and food supply, winds and dust, and disposal of excreta were the same before, during, and after the epidemic. The only factor that differed was the number of flies present in the camps.

4. Contaminated water, eating of raw food in Mexican resorts, contamination of food or drink by infected dust, and direct infection by contact have all been excluded as methods of transmission in this particular epidemic.

Treatment with emetine hydrochloride has not been successful either in preventing the development of cysts of *Endamœba histolytica*, and therefore the development of "carriers," or in causing the cysts to disappear permanently after they have appeared. While the drug has a very beneficial effect upon the symptoms of endamœbic dysentery it is not curative, if by cure is meant the permanent removal of the infection by the destruction of all of the endamœbæ.

As a result of the investigation of the epidemiology of the epidemic of endamœbic dysentery observed here the following recommendations regarding the prophylaxis of the disease were submitted in the special report referred to previously:

1. When a case of endamœbic dysentery is discovered in an organization a microscopic examination of the stools of all soldiers in the organization who have to do with the preparation or serving of food or drink should be made for the cysts of *Endamœba histolytica*, and, if possible, the examination should include all members of the organization.

2. If "carriers" of the infection are discovered they should be admitted to hospital at once and treated, the treatment being controlled by weekly examinations of the stools, extending over a period of at least two months after the completion of treatment. It is useless to base a diagnosis of a cure of the infection upon the absence of the endamœbæ from the stools a week or two after cessation of treatment, for in most instances, the endamœbæ disappear shortly after treatment is begun, but only to reappear later.

3. If "carriers" prove resistant to treatment they should be discharged from the service. Experience has shown that unless this is done it will be necessary to carry them in hospital indefinitely, if danger of their spreading the infection is to be avoided.

4. The stools of all individuals showing any form of *Endamæba histolytica* should be disinfected immediately after passage, whenever practicable. This rule should never be broken where it is necessary to dispose of the excreta in latrines, or by any method where it is possible for flies to gain access to the stools.

5. The screening of cook houses, mess halls or tents, and of food from flies is a measure of paramount importance, as these insects are undoubtedly the greatest factor in the spread of endamæbic dysentery under conditions present in temporary or semipermanent camps.

6. The prevention of the breeding of flies, and their destruction, if breeding can not be prevented, is a prophylactic measure of great importance. To this end picket lines should be as far removed as possible from quarters and mess tents, and no manure should be allowed to collect; all collections of organic matter suitable for the breeding of flies should be sought for and destroyed; latrines should be built as nearly fly proof as possible, and if not fly proof, should be treated with a mixture of kerosene and lampblack; fly traps should be extensively used and frequently emptied; and camps should be located as far away as possible from native habitations in regions where endamæbic dysentery is endemic.

7. The water supply should be carefully guarded from infection and if there is any question of its purity, it should be boiled or the Lyster bag be used.

8. In regions where the disease is endemic the use of uncooked fruits, vegetables, and salads should be prohibited.

9. Physicians and nurses who have the care and handling of cases of this disease should take the same precautions as regards personal prophylaxis as they would in handling cases of typhoid, paratyphoid, or similar infections.

10. Patients suffering with the disease or who become "carriers" of it should be informed of the danger of their transmitting it to the healthy, and instructed regarding the measures that they may take to prevent such transmission.

Diagnosis of typhoid and paratyphoid fever.—During the period covered by this report 477 blood cultures have been studied for the typhoid group of organisms, and 658 cultures have been made from feces for diagnostic purposes. In addition, 246 agglutinations have been made for the typhoid and paratyphoid bacilli and 85 cultures from the urine.

Of the blood cultures, 14 were positive for the typhoid bacillus, while 99 were positive for paratyphoid A and one for the paratyphoid B organism. There is appended a complete list of the cases proving positive, with the data of importance concerning them.

Of the 14 cases giving a positive blood culture for the typhoid bacillus, no data regarding immunization with typhoid vaccine was obtained in three cases; in nine immunization had been completed with the Army vaccine, in one case in 1911; in one case in 1912; in two cases in 1914; and in five cases in 1916. Two positive cases had been immunized with Massachusetts State vaccine and one

with Idaho State board of health vaccine. In two cases we were unable to determine what vaccine was used.

Maj. Nichols, who has had charge of the diagnostic work of the laboratory as regards typhoid and paratyphoid fevers, states as follows regarding the use of blood cultures in the diagnosis of these infections:

"Blood cultures in typhoid group.—The present blood-culture technique is very satisfactory, the only drawback being that medical officers in some cases do not take specimens early enough in the disease. If in every suspected infection in this group, 2-3 c. c. of blood were taken in the first few days and put into bile media or in a Wright's tube or vial and sent to a properly equipped laboratory, very few cases would be missed.

"The present technique used in this laboratory consists of adding 2-3 c. c. of blood, preferably from a vein, to 5 c. c. of sterile bile; after 24 hours incubation, Russell's double sugar and Endo plates are inoculated; after 24 hours incubation, if the case is positive and the growth fairly pure, agglutination is made directly from Endo plates. Hence if the specimen comes from some distance so that it is incubated in the bile en route a diagnosis can be given in 24 hours in favorable cases. If the specimen is badly contaminated, 48 hours is necessary. In a few cases with atypical or doubtful reactions, a longer time of course is required.

"Peces cultures for typhoid group.—This work has been rather unsatisfactory, less than 1 per cent of specimens examined being positive. This result is partly due to late examination, owing to the shipment of specimens from a distance, but it is also partly due to the method itself, as known positive cases, examined early, even with brilliant green enrichment, have failed to show the organisms.

"Some observations on the examination of duodenal cultures have been made and this method is believed to be much superior for the detection of cases and carriers."

A special report upon this subject has been prepared for publication.

Water examinations.—At the time the laboratory was opened there was no data regarding the bacteriological character of many of the wells supplying troops camped along the border, and accordingly we have endeavored to make a water survey of all sources of supply within the El Paso district. The water has been collected personally, in most instances, and at the present time we have a record of the bacteriological character of the water in nearly all localities where troops are camped in the district.

It is interesting to note that in almost every instance the water was found to be badly contaminated, most of the water being obtained from surface wells, and that in many instances no obvious source of contamination could be determined. Our examinations prove that nearly all surface well water in this region is dangerous and should be sterilized before use.

General examinations.—The table illustrates the character of the general examinations made in the laboratory and demonstrates that they cover a wide field. Fortunately, there is a well-equipped clinical laboratory at Base Hospital No. 2, and this has relieved this laboratory of an immense amount of routine work. If this work had been added to the work requested from the laboratory, it would

have been necessary to have had another medical officer assigned to the laboratory and at least two more privates of the Medical Department.

Research work.—Owing to pressure of routine examinations it has been impossible to conduct very much research work and that attempted has been along lines that could be worked out in conjunction with routine examinations, to a large extent. A study was made of the epidemiology of the outbreak of endamoebic dysentery that occurred here in the summer and early autumn, and the effect of treatment with emetine upon *Endamoeba histolytica*; an investigation of the value of cultures of material obtained by the duodenal tube in the detection of "carriers" of typhoid and paratyphoid fever is still under way; additional work has been done upon complement fixation in the diagnosis of tuberculosis; the isolation and determination of the types of pneumococci concerned in the present epidemic of pneumonia is being undertaken; considerable experimental work has been done upon paratyphoid vaccine; and a little work has been done upon the etiology of typhus fever. However, our experience has shown that if research work is to be one of the functions of a department laboratory, it will be absolutely necessary to assign enough personnel so that the routine examinations can be made by officers detailed for that purpose, leaving certain other officers free to devote their entire time to research. It is impossible for work of this character to be done well, and with any expectation of success, if the officers engaged in it are continually interrupted by the necessity of making routine examinations.

Publications and reports.—During the time that the laboratory has been in operation a special report upon the occurrence of endamoebic dysentery in the troops stationed at El Paso has been prepared and forwarded, as well as one upon the detection of "carriers" of typhoid and paratyphoid fever by cultures of bile obtained with the duodenal tube, the former by the officer in charge, and the latter by Maj. Henry J. Nichols, Medical Corps, United States Army. In addition the following papers have been prepared for publication:

1. Alkaline treatment of early gall-bladder carriers with observations on their detection by aid of the duodenal tube. By Maj. H. J. Nichols, Medical Corps, United States Army. To be published in Journal of the American Medical Association.

2. The classification of the parasitic ameba of man. By Maj. Charles F. Craig, Medical Corps, United States Army. Published in the Journal of Medical Research, January, 1917.

3. The practical application of the Wassermann test in the diagnosis and as a control of the treatment of syphilis. By Maj. Charles F. Craig, Medical Corps, United States Army. Published in the American Journal of Syphilis, January, 1917.

4. The complement fixation test in the diagnosis of tuberculosis. By Maj. Charles F. Craig, Medical Corps, United States Army. To be published in the Journal of the American Medical Association.

Equipment.—The laboratory is well equipped for the work it is called upon to do and for research work. Every request for equipment has been promptly granted and most of the equipment has been received and installed. The rooms occupied by the laboratory answer the purpose very well, but if it is intended that this laboratory become a permanent institution for this district, a suitable

building should be erected near Base Hospital No. 2, on the Fort Bliss Reservation, both as a matter of economy and of efficiency, as a very large part of the material sent the laboratory for examination would come from the base hospital. It would also be much better from a research standpoint, as clinical material would be near at hand and could be utilized to much better advantage. However, if such a change should be made, it is believed that the present status of the laboratory should remain as it is, i. e., a separate command directly under department headquarters.

It is recommended that measures be taken to give laboratory assistants who have qualified in their duties to the satisfaction of the officer in charge of the individual laboratory a rating for additional pay of \$5 a month, as in the case of surgical assistants. Although dispensary assistants now have a rating for additional pay of \$2 per month, nurses a rating of \$3 per month, and surgical assistants of \$5 per month, the national-defense act provided for no rating for additional pay for laboratory assistants, a manifest injustice to a very deserving class of enlisted men in the Medical Department. A good laboratory assistant must possess a large amount of technical scientific knowledge and the duties are very arduous and the hours long, so that it is believed that these men should receive extra pay because of the character of their work. At the present time there is no inducement for men to enter the Army laboratories as assistants, and the consequence is that we often have to content ourselves with inferior service when much better service could be obtained if the assistants received special ratings for additional pay while on duty in laboratories. It is hoped that some method may be worked out that will give the laboratory assistant the same consideration now accorded dispensary, nurses, and surgical assistants.

In closing this report I desire to call attention to the very efficient assistance rendered by Maj. Henry J. Nichols, Medical Corps, United States Army and Capt. Felix R. Hill, Medical Corps, United States Army, during the period that they have been on duty in the laboratory.

Cases of typhoid diagnosed at Department Laboratory No. 2, Mills Building, El Paso Tex., from Aug. 1, 1916, to Jan. 1, 1917.

No.	Rank.	Com- pany.	Regiment or corps.	Station.	Date of diagnosis.	Method of diagnosis.	Prophylaxis.
1	Second Lieutenant	.....	Quartermaster Corps...	Mexico.....	Aug. 17, 1916	Agglutination.	No data.
2	Sergeant.....	C	Fourth Field Artillery...	do.....	Aug. 19, 1916	do.....	3 doses Army vaccine September, 1911 (-).
3	First Lieutenant	.....	Second Pennsylvania In-	Fort Bliss, Tex.....	Aug. 26, 1916	Bile culture	(1) June 24, (2) July 6, (3) July 16, 1916; Army vaccine (+).
4	Sergeant.....	A	Ninth Massachusetts In-	Camp Cotton, Tex.....	Sept. 22, 1916	do.....	3 doses June, 1914, State vaccine.
5	Civilian.....	Truher.	Quartermaster Corps...	Camp Hospital, Marfa, Tex.....	do.....	do.....	(-).
6	Sergeant.....	C	Thirteenth Cavalry.....	Field Hospital No. 3, Dublin, Mexico.	Oct. 1, 1916	do.....	Army vaccine, Nov. 30, 1912.
7	First sergeant.....	M	Ninth Massachusetts In-	Base Hospital No. 2, Fort Bliss, Tex.....	Oct. 6, 1916	do.....	3 doses 1914, Army vaccine, June.
8	Private.....	A	First Rhode Island Cavalry	Fort Bliss, Tex.....	Oct. 7, 1916	do.....	3 doses 1916, May, Army vaccine (+).
9	.....	.....	Idaho Infantry.....	Camp Hospital, Nogales, Ariz.....	Oct. 8, 1916	do.....	(1) June 28, (2) July 5, (3) July 18, 1916; H. K. Mullford's State Idaho board of health.
10	Private.....	.....	Medical Department.....	Base Hospital No. 2, Fort Bliss, Tex.....	Oct. 11, 1916	do.....	Completed July 5, 1916, Army vaccine (+).
11	do.....	G	Thirteenth Cavalry.....	Field Hospital No. 3, Dublin, Mexico.	Oct. 14, 1916	do.....	Army vaccine Apr. 5, 1914 (+).
12	do.....	A	U.S. C. Infantry.....	Base Hospital No. 2, Fort Bliss, Tex.....	Oct. 19, 1916	do.....	3 doses July 1916—July 1, 1916; July 11, 1916; July 24, 1916, completed 24th; mobilization camp; Army vaccine (+).
13	Sergeant.....	Supp.	Sixteenth Infantry.....	Field Hospital No. 7, El Valle, Mexico.	Nov. 6, 1916	do.....	Completed May 11, 1914 (+).
14	Corporal.....	P	First Massachusetts In-	Base Hospital No. 2, Fort Bliss, Tex.....	Nov. 7, 1916	do.....	3 doses State vaccine 1913; 1 dose State vaccine June, 1916.
15	Private.....	A	Fifth Cavalry.....	Field Hospital No. 7, El Valle, Mexico.	Nov. 10, 1916	do.....	No data.
16	do.....	D	First New Mexico In-	Base Hospital No. 2, Fort Bliss, Tex.....	Nov. 15, 1916	do.....	Columbus, N. Mex., Army vaccine; 3 doses July-August, 1916 (+).
17	do.....	G	Thirteenth Cavalry.....	Field Hospital No. 3, Dublin, Mexico.	Dec. 21, 1916	do.....	No data.

Cases of paratyphoid A diagnosed at Department Laboratory No. 2, Mills Building, El Paso, Tex., from Aug. 1, 1916, to Jan. 1, 1917.

No.	Rank.	Com- pany.	Regiment or corps.	Station.	Date of diag- nosis.	Method of diag- nosis.	Prophylaxis.
1	Private	I	Signal Corps	Field Hospital No. 3, Dublin, Mexico	Sept. 22, 1916	Blood culture	No data.
2	do	C	First Connecticut Infantry	Fort Huachuca, Ariz.	Sept. 8, 1916	do	Do.
3	do	Hqs.	do	Camp hospital, Douglas, Ariz.	Sept. 13, 1916	do	Do.
4	Sergeant	A	Fifth New Jersey Infantry	do	Sept. 6, 1916	do	Do.
5	Private	A	do	do	Sept. 1, 1916	do	Do.
6	do	A	do	do	Sept. 1, 1916	do	Do.
7	do	A	do	do	Sept. 6, 1916	do	Do.
8	do	A	do	do	do	do	Do.
9	do	A	do	do	Sept. 24, 1916	do	Do.
10	do	A	do	do	Sept. 9, 1916	do	Do.
11	Corporal	F	do	do	Sept. 13, 1916	do	Do.
12	Private	F	Seventh Cavalry	Field Hospital No. 3, Dublin, Mexico	Sept. 23, 1916	do	Do.
13	do	M	do	do	do	do	Do.
14	do	M	do	do	do	do	Do.
15	Sergeant	M	do	do	Sept. 22, 1916	do	Do.
16	Private	C	Eleventh Cavalry	Mexico	Aug. 8, 1916	do	Do.
17	Corporal	F	do	Field Hospital No. 3, Dublin, Mexico	Sept. 20, 1916	do	Do.
18	Bugler	F	do	do	do	do	Do.
19	First sergeant	F	do	do	do	do	Do.
20	Horseshoer	F	do	do	Sept. 22, 1916	do	Do.
21	Sergeant	F	do	do	Sept. 20, 1916	do	Do.
22	Corporal	F	do	do	do	do	Do.
23	do	F	do	do	do	do	Do.
24	Sergeant	F	do	do	Sept. 18, 1916	do	Do.
25	Private	F	do	do	Sept. 20, 1916	do	Do.
26	do	F	do	do	do	do	Do.
27	do	F	do	do	Sept. 18, 1916	do	Do.
28	do	F	do	do	Sept. 20, 1916	do	Do.
29	do	F	do	do	do	do	Do.
30	Cook	F	do	do	do	do	Do.
31	Private	F	do	do	do	do	Do.
32	do	F	do	do	do	do	Do.
33	do	F	Truck driver, Quartermaster Corps	Mexico	Aug. 5, 1916	do	Do.
34	do	M	Seventh Cavalry	Field Hospital No. 3, Dublin, Mexico	Sept. 23, 1916	do	Do.
35	do	M	Medical Department	do	Sept. 28, 1916	do	Do.
36	do	M	Fourth Field Artillery	do	Sept. 27, 1916	do	Do.
37	Cook	M	Eleventh Cavalry	do	Sept. 28, 1916	do	Do.
38	Private	K	Thirteenth Cavalry	do	do	do	Do.
39	do	C	do	do	do	do	Do.
40	do	M	do	do	do	do	Do.
41	do	G	Seventh Cavalry	do	do	do	Do.
42	Private	P	Tenth Cavalry	do	Oct. 1, 1916	do	Do.
43	do	Supp.	Seventh Cavalry	do	Oct. 2, 1916	Feces culture	Do.

[illegible]

Cases of paratyphoid A diagnosed at Department Laboratory No. 2, Mills Building, El Paso, Tex., from Aug. 1, 1916, to Jan. 1, 1917—Continued.

No.	Rank.	Com- pany.	Regiment or corps.	Station.	Date of diag- nosis.	Method of diag- nosis.	Prophylaxis.
94	Regiment.		First South Carolina Infantry	Base Hospital No. 2, Fort Bliss, Tex.	Oct. 23, 1916	Blood culture.	
95	do.		Thirteenth Cavalry	Field Hospital No. 3, Dublin, Mexico.	Oct. 20, 1916	do.	Died Oct. 30, 1916; per- forated ulcer muscu- lar valve.
96	Private.	C	Fourth Field Artillery	Field Hospital No. 7, El Valle, Mexico.	Oct. 31, 1916	do.	No data.
97	do.	L	Eleventh Cavalry	Base Hospital No. 2, Fort Bliss, Tex.	Nov. 1, 1916	do.	Do.
98	Regiment.		Quartermaster Corps.	do.	Nov. 2, 1916	Bile culture	From Dublin, Mexico, 2 weeks.
99	Private.	H	Fifth Cavalry	Field Hospital No. 7, El Valle, Mexico.	Nov. 3, 1916	Blood culture	Ojo Frederico, Mexico.
100	Machine.	A	Fourth Field Artillery	Field Hospital No. 3, Dublin, Mexico.	Nov. 5, 1916	do.	No data.
101	Cook.	Supp.	Seventh Cavalry	do.	Nov. 6, 1916	do.	Do.
102	Private.	A	Fourth Field Artillery	do.	Nov. 6, 1916	do.	Do.
103	First-class private.	K	Fifth Cavalry	Base Hospital No. 2, Fort Bliss, Tex.	Nov. 13, 1916	do.	On leave from El Valle, Mexico; 2 doses para- typhoid A; incuba- tion Oct. 22-29, 1916.
104	Civilian.		Mexican.	Cantonment Hospital, Columbus, N. Mex.	Nov. 21, 1916	do.	No data.

Cases of paratyphoid B diagnosed at Department Laboratory No. 2, Mills Building, El Paso, Tex., from Aug. 1, 1916, to Jan. 1, 1917.

No.	Rank.	Com- pany.	Regiment or corps.	Station.	Date of diag- nosis.	Method of diag- nosis.	Prophylaxis.
1	Corporal.	F	First Massachusetts Field Artil- lery.	Fort Bliss, Tex.	Sept. 11, 1916	Feces culture.	No data.
2	Private.	F	Eleventh Cavalry	Field Hospital No. 3, Dublin, Mexico.	Sept. 23, 1916	Blood culture	Do.

DEPARTMENT LABORATORY NO. 3, NOGALES, ARIZ.

LABORATORY BUILDING AND EQUIPMENT.

The laboratory occupies a separate building on land leased from the town of Nogales, in proximity to Base Hospital No. 5. Construction of the building began on August 20, 1916, and the building was turned over for occupancy on September 16, 1916. Construction was supervised by Maj. Edward B. Vedder, Medical Corps, who materially altered the original plans of Maj. Clarence Le R. Cole, Medical Corps. Although the original plan was admirable, it is believed that the changes made by Maj. Vedder added greatly to the convenience and usefulness of the building.

The total cost of the building was \$3,500. It is a frame structure 28 by 50 feet, with porches on three sides, and conforms generally to the type of building used in the construction of Base Hospital No. 5. On the main floor there are six rooms—a record office where the clerical work is done; two combined offices and workrooms for the director and his assistant; a large bacteriological laboratory; a commodious laboratory for chemical and pathological work; and a dust-proof room, finished in white enamel, which is equipped for the preparation of vaccines, careful animal work, and other procedures requiring absolutely aseptic technic.

Advantage was taken of the sloping terrain on which the laboratory stands and otherwise waste space beneath the building was utilized for a commodious preparation room in which sterilizers, electric water heater, water still, toilets, and apparatus for the preparation and sterilization of culture media are installed and, leading from this room, a storeroom and animal room, both of which are most conveniently arranged. A dumb-waiter connects the preparation room with the laboratories on the main floor. This arrangement makes possible the segregation of the various laboratory activities so that dust and dirt, leading to annoying contaminations of cultures and media, are reduced to a minimum.

The interior finish on the main floor is tongue-and-groove Oregon pine ceiling. The tops of laboratory benches are of 2½-inch sugar pine, finished with a black, acid-proof stain. Drawers and cupboards are built in beneath the benches at convenient intervals. The building is lighted by electricity, and power plugs are placed at intervals for incubators, centrifuges, and other apparatus operated by electricity. An electric centrifuge and shaking machine are mounted on a solid concrete pillar extending to the ground, which obviates vibration and noise. The building is supplied with gas for the operation of Bunsen burners, sterilizers, and other gas-heated apparatus. Windows and doors are screened throughout. The plumbing consists of three laboratory sinks, two lavatories, and two toilets. Hot water is furnished by an electric heater connected with a 30-gallon tank.

The laboratory equipment is new throughout, most complete, and exceedingly satisfactory in every way. The promptness and facility with which requisitions for apparatus and supplies have been approved offers most gratifying evidence of the policy of the Surgeon General's Office to encourage scientific work.

LABORATORY PERSONNEL.

The laboratory personnel consists of Capt. George B. Foster, jr., Medical Corps; Capt. William B. Meister, Medical Corps; two sergeants and three privates, first class, Medical Department. Capt. Foster relieved Maj. Edward B. Vedder, Medical Corps, upon the latter's return to the Army Medical School, September 23, 1916, and Capt. Meister reported for duty on September 28, 1916.

SCOPE OF LABORATORY WORK.

The first laboratory work was performed during the latter part of September and consisted of routine clinical laboratory examinations of material from Base Hospital No. 5. The functions of a department laboratory, serving Base Hospital No. 5, Nogales, Ariz.; the camp hospital at Douglas, Ariz.; the post hospital, Fort Huachuca, Ariz.; and the various troops of the Arizona district in the field, were assumed on October 4, 1916. During the slightly over three months that the laboratory has been in operation 4,018 examinations have been reported as summarized below:

Summary of clinical laboratory examinations, Department Laboratory No. 3.

Blood:		
For malaria.....		191
Positive.....	19	
Negative.....	172	
Leucocyte counts.....		218
Erythrocyte counts.....		51
Differential leucocyte counts.....		170
Hemoglobin estimations.....		31
Blood cultures, miscellaneous.....		25
Sputum:		
For tubercle bacilli.....		234
Positive.....	9	
Negative.....	225	
For other organisms.....		95
Urine:		
Chemical analyses.....		445
Microscopical examinations.....		423
Feces:		
For parasites and ova.....		150
For occult blood.....		2
Stomach contents, chemical analyses of.....		9
Spinal fluid:		
Cell counts.....		1
For meningococci.....		17
Positive.....	7	
Negative.....	10	
Throat cultures for diphtheria.....		136
Positive.....	1	
Negative.....	135	
Cultures of pus, exudates, etc.....		120
Urethra smears for gonococci.....		575
Histological examinations of tissues.....		10
Autogenous vaccines prepared.....		3
Water:		
Bacteriological examinations.....		3
Chemical analyses.....		0
Animal inoculations.....		49
For diagnosis.....	6	
For immune sera, etc.....	43	
Dark-field examinations for treponema pallidum.....		3

Typhoid and paratyphoid examinations:		
Suspected cases examined.....		90
Positive for B. typhoid, 3; B. paratyphoid A, 1; B. paratyphoid B, 2.		
Negative for B. typhoid, 87; B. paratyphoid A, 89; B. paratyphoid B, 88.		
Convalescents examined.....		29
Positive for B. typhoid, 0; B. paratyphoid A, 0; B. paratyphoid B, 0.		
Negative for B. typhoid, 29; B. paratyphoid A, 29; B. paratyphoid B, 29.		
Suspected carriers or contacts examined.....		15
Positive for B. typhoid, 0; B. paratyphoid A, 0; B. paratyphoid B, 1.		
Negative for B. typhoid, 15; B. paratyphoid A, 15; B. paratyphoid B, 14.		
Agglutination tests.....		16
Positive for B. typhoid, 1; B. paratyphoid A, 0; B. paratyphoid B, 2.		
Negative for B. typhoid, 15; B. paratyphoid A, 16; B. paratyphoid B, 14.		
Blood cultures.....		57
Positive for B. typhoid, 1; B. paratyphoid A, 1; B. paratyphoid B, 1.		
Negative for B. typhoid, 56; B. paratyphoid A, 56; B. paratyphoid B, 56.		
Feces.....		58
Positive for B. typhoid, 2; B. paratyphoid A, 1; B. paratyphoid B, 2.		
Negative for B. typhoid, 56; B. paratyphoid A, 57; B. paratyphoid B, 56.		
Urine.....		14
Positive for B. typhoid, 0; B. paratyphoid A, 0; B. paratyphoid B, 0.		
Negative for B. typhoid, 14; B. paratyphoid A, 14; B. paratyphoid B, 14.		
Dysenteries, examinations of feces for.....		27
Bacillary types.....		9
Positive.....	0	
Negative.....	9	
Entamebic type.....		18
Positive.....	12	
Negative.....	6	
Gonococcus fixation tests.....		49
Wassermann tests.....		807
Positive.....	160	
Negative.....	647	
Reexaminations.....	154	
Autopsies.....		14
Examinations of suspected narcotics, foods, beverages, etc.....		5
Miscellaneous examinations not otherwise listed.....		10
Total examinations for the period.....		4,018

Analysis of the above data shows that the work of a laboratory of this sort covers a large field, embracing bacteriology, pathology, chemistry, parasitology, serology, and immunology. The relatively large number of clinical laboratory examinations is explained by the fact that this laboratory functions not only as a department laboratory but as the clinical laboratory of Base Hospital No. 5 as well.

It is believed that the functions of a diagnostic laboratory have been fulfilled satisfactorily. This assumption is based upon very gratifying replies to a circular letter from the laboratory requesting information as to the character of the service and inviting constructive criticism. The replies expressed general satisfaction with the service.

An endeavor has been made to cooperate with the district sanitary inspector by reporting immediately all positive findings in infectious diseases, thus enabling him to institute preventive measures without delay. An investigation for the detection of typhoid carriers was made in Company E, First California Field Artillery, and the detach-

ment Medical Department, Second Idaho Infantry. This investigation resulted in the isolation of *B. paratyphosus* from the feces of a soldier of the Idaho organization who gave a history of a continued fever, diagnosed clinically as typhoid, in 1900. His mother and sister contracted the same fever, apparently by contact, during the illness of the soldier. There was no history of known subsequent contact infections. The history in this case may be reconciled to the bacteriological findings if we assume that the illness in 1900 was paratyphoid fever, simulating typhoid clinically, and that since that date the soldier has been a paratyphoid carrier. An investigation of meningitis contacts has just been completed, as reported in detail below.

INFECTIOUS DISEASES.

Typhoid and paratyphoid infections.—Three cases of typhoid fever were diagnosed during October, but no cases have been detected since that time. One case was a soldier of the Fifth New Jersey Infantry, stationed at Douglas, Ariz., and the remaining two cases occurred in Battery E, First California Field Artillery, and the detachment Medical Department, Second Idaho Infantry, respectively, stationed at Nogales, Ariz. The typhoid bacillus was isolated from the blood and feces in two of the cases and from the feces alone in one case. The bacteriological diagnoses made by this laboratory were confirmed at the Army Medical School.

Paratyphoid infections were diagnosed bacteriologically in three cases. Two of these infections were due to *B. paratyphosus* B and one case was of the paratyphoid A type. The large number of requests for typhoid-paratyphoid examinations indicate that medical officers are exercising every effort to avoid missing mild and atypical cases, and it seems safe to assume that no typhoid or paratyphoid infections have escaped detection.

Dysenteries.—Entamebic dysentery has been encountered in 12 cases. The histories point to the infections having been contracted locally in the majority of the cases. The disease is endemic here as in most other sections of the country. No case of bacillary dysentery has been seen.

Malaria.—A diagnosis of malaria has been made in 17 cases. One case was of the estivo-autumnal type, the remainder being tertian. Seven of the cases have occurred recently among the Alabama troops and represent recurrences of latent infections. The 10 earlier cases occurred principally among northern troops and were undoubtedly contracted here. Malaria occurs at all seasons of the year in this vicinity.

Cerebrospinal meningitis of the epidemic type has been encountered twice. One case was from the District of Columbia Signal Corps and the other from the Sixth United States Field Artillery. Both ended in recovery as a result of early diagnosis by lumbar puncture and repeated intraspinal injections of antimeningitis serum. At the request of Lieut. Col. Bratton, Medical Corps, 128 contacts were examined in the organizations from which these cases came. The secretions collected on swabs from the posterior nares and nasopharynx were emulsified in sterile distilled water, and blood-agar plates were prepared from each emulsion. After 24 hours' incubation, colonies

that resembled those of meningococci were fished and stained by Gram's method. Colonies showing Gram-negative diplococci were then subcultured on Hiss's serum-water media, containing lactose, saccharose, dextrose, and maltose. Gram-negative diplococci, morphologically indistinguishable from the meningococcus, were isolated in a number of cases, but in no instance did these organisms fulfill the requirements of the meningococcus by fermenting dextrose and maltose without acidulation of the other saccharides.

Diphtheria has been diagnosed in one instance only. It is believed that very few, if any, cases have escaped detection, as cultures are made routinely at Base Hospital No. 5 in all cases of sore throat.

Anthrax.—One case of anthrax occurred in the First Alabama Infantry. The clinical diagnosis was cellulitis of the face. Anthrax bacilli were demonstrated in smears and *B. anthracis* was isolated from the lesion in pure culture. Recovery followed radical excision of the malignant pustule and treatment with Sclavo's serum.

Acute respiratory infections have given most concern to the sanitary inspectors since the onset of cold weather. As most of these infections were diagnosed as influenza, a bacteriological investigation was requested by Col. Bratton. A series of about 20 cases were selected at random and cultures of the sputum, collected in sterile bottles, were made on streaked blood-agar plates. *B. influenzae* was demonstrable in one-third of the cases, but never in predominating numbers. The pneumococcus, micrococcus catarrhalis, streptococcus viridans, and various hemolytic streptococci were found more frequently than *B. influenzae* and in infinitely greater numbers. These findings are in accord with those of various investigators in large cities throughout the country during the epidemics of grip during the winter of 1915-16.

Recently pneumonia has been prevalent, especially among the Alabama troops. Autopsies on fatal cases have shown the lesions of typical lobar pneumonia. Cases of the broncho-pneumonic type have not been encountered. The fact that pneumonia is largely confined to the Alabama troops suggests some predisposing cause that is not common to the other troops. The thought has occurred, and Col. Bratton has held to this opinion from the start, that latent malaria and hookworm infections, by sapping the normal powers of resistance to infection, may be important factors. The preliminary laboratory results support this contention. The number of pneumonia cases in which the feces have been examined is small, but the fact that 88 per cent of these show hookworm infection, while only 20 per cent of the same soldiers admitted with other conditions have been shown to harbor the parasite, is suggestive at least that the investigation of a large number of cases will give credence to the contention. From now on the feces of all Alabama soldiers admitted to hospital will be examined for hookworm and a control series of a squad from each company of the three regiments will be examined simultaneously.

WASSERMANN REACTION.

The technic of the Wassermann test as performed in this laboratory is identical with that used at the Army Medical School by Maj. Edward B. Vedder, Medical Corps. Were convention to be followed a report of this sort should contain a lengthy discussion of the merits of the test, bolstered by an array of statistics. It is felt that this is

no longer necessary. The Wassermann test as standardized by Maj. Vedder is thoroughly reliable as a diagnostic test and that its value is appreciated by medical officers throughout the service is attested by the place it has taken as a routine diagnostic procedure. A Wassermann test is required by orders at the camp hospital at Douglas on every case admitted, and it is a routine procedure in some of the wards of Base Hospital No. 5. This has resulted in a large number of negative reports, but these have been of value in eliminating syphilis in many cases. Very frequently much light has been thrown upon obscure medical and surgical cases by a positive Wassermann reaction. This test should take its place, along with the urinalysis and blood pressure reading, in every thoroughly worked up case.

SUPPLIES ISSUED.

Many requests have been received from the stations served by this laboratory for stock vaccines, culture media, mailing cases, etc., as contemplated by Circular 51, department surgeon's office, Southern Department, August 12, 1916. These requisitions have been filled upon the day of receipt. In addition to the supplies contemplated in the circular quoted, a supply of biological products, including antimenigitis serum, antitetanic serum, antidiphtheric serum, and Sclavo's antianthrax serum have been kept in stock. This rather unusual procedure has been necessitated because of the meager stock of these products carried by local dealers and the delay occasioned by obtaining them from a distance when cases arise requiring their use.

NEEDS AND RECOMMENDATIONS.

The laboratory is splendidly equipped to do not only the diagnostic work required of it, but to expend its activities so as to embrace more investigative work.

It is understood that plans for contonments at Nogales, Douglas, Naco, and Yuma have been approved, which indicates that troops will be in this district indefinitely. In the event of military operations in Mexico, this laboratory could serve not only this base, but is situated on a railroad extending from Nogales to Guaymas on the Gulf of California and could handle with dispatch the work of the line of communications. The building is sufficiently commodious to accommodate double the personnel now on duty and expansion simply resolves itself into a question of increase in personnel.

Situated as it is, with a large hospital at its door, much time that could otherwise and should be devoted to investigative work is occupied with routine clinical laboratory examinations. This routine work is of the highest importance; but, on the other hand, many valuable opportunities to investigate the cause and modes of transmission of infectious diseases are lost because of lack of time. It is recommended that an officer of the recently created research division of the Medical Corps be detailed at this laboratory in addition to the personnel now allotted.

As regards enlisted personnel an experienced sergeant, first class, is urgently needed. This detail would relieve the officer in charge of much clerical work that now infringes upon days filled with other duties.

A matter that should receive departmental consideration is the question of extra pay for enlisted laboratory assistants such as is now available for enlisted dispensary, surgical, and dental assistants and wardmasters. The work required of laboratory assistants, at least in this laboratory, entails longer hours of duty than that of the other classes mentioned and an equally high degree of skill and training. It is only equitable that they should receive extra emoluments for their extra efforts.

A few minor additions to the laboratory building are necessary, such as ceiling the preparation room and animal room in conformity with the rest of the building. The necessity for this is shown in the photograph which accompanies this report. A cold room for the storage of media and biological products is also desired. Estimates for the construction of these items will be forwarded at the proper time.

Capt. George B. Foster, Medical Corps, reports on Rosenow antigen treatment of pneumonia as follows:

1. At the request of the commanding officer, Base Hospital No. 5, I have carefully investigated the advisability of using the Rosenow method of treating pneumonia with specific antigens and, after going over the matter with Capt. Flynn, who is treating most of the cases, we have come to the conclusion that the method has no advantages over the treatment now in vogue at the hospital.

2. Eighty-eight cases of pneumonia have been admitted to date and 12 of these have died, establishing a death rate of 13.6 per cent. The death rate shown by Rosenow in a series of cases comparable to ours in age—namely, 21 to 30 years—is 18 per cent. In his control series not treated specifically the death rate was 22.2 per cent. It will be seen that the difference in the percentages is not great and that our death rate here is considerably lower than in his series of specifically treated cases. Furthermore, although Rosenow instituted this specific treatment in 1911 and has reported his results at various times since then, I am unable to find favorable results with this treatment reported by others. Finally, the technic required for the preparation of these antigens is complicated and time consuming and, although the laboratory is prepared to carry on the work, if you desire it, it is believed that the time required can be spent much more profitably on other work.

3. I feel that this explanation is due your office and that of the department surgeon, as through your efforts and the prompt action of the department surgeon's office an additional medical officer, Capt. Wilde, has been detailed for duty here.

4. Although Capt. Wilde has been on duty a few days only, I believe he will prove to be a most valuable acquisition. He seems to have the necessary enthusiasm, is attentive to duty, and interested in his work, and I hope that it may be arranged for him to remain here permanently.

HOOKWORM SURVEY—SICK IN HOSPITAL.

1. The following results have been obtained in the hookworm survey of Alabama soldiers admitted to Base Hospital No. 5 to date:

Diagnosis.	Total examinations.	Positive.	Negative.	Per cent positive.
Pneumonia.....	50	25	25	<i>Per cent.</i> 50
Influenza.....	41	9	32	21.9
Bronchitis.....	18	9	9	50
Tonsillitis.....	21	9	12	42.8
Undetermined.....	11	3	8	27.2
All other conditions.....	53	7	46	13.2

Total examinations of all conditions.....	194
Total showing hookworm.....	62
Percentage of cases positive.....	per cent.. 31.9

Lieut. Col. T. S. Bratton, Medical Corps, reports on the sickness of Alabama troops as follows:

In view of the statements made by Capt. Foster the Rosenow treatment will not be used, but it is proposed to use the laboratory to help eradicate hookworm disease in the Alabama troops, for I am convinced that the lowered resistance shown by these troops is, in a great measure, due to the presence of hookworm disease in a large percentage of the troops.

This matter of hookworm disease in the Alabama troops was first impressed on me at the maneuvers at Manassas in 1904, and when they arrived at this station I directed the attention of the medical officers of the hospital and laboratory to this fact, in an informal way. The laboratory has found a large per cent of the sick suffering from the hookworm infection. Of 50 cases of pneumonia 25 showed hookworm. The First Alabama Infantry, which shows by far the greatest number of pneumonias, came from the lower part of Alabama, where the soil is sandy and where the infection is quite prevalent. Therefore I think the solution of the sickness in the Alabama troops is to eradicate the hookworm infection, and with the laboratory to help we will institute a vigorous campaign along that line, but we will need considerable thymol etc., and to hasten and facilitate our work it is requested that the requisition for the base hospital, herewith inclosed, be furnished at once. I will see that it is distributed to the different organizations from the base hospital as they require it.

A table prepared by Capt. Foster, showing the prevalence of hookworm disease in the troops, is inclosed.

MEDICAL DEPARTMENT.

The following statement shows the strength of the personnel commissioned, enlisted, and employed by contract or otherwise, of the Medical Department on June 30, 1917.

Medical officers.....	489
Approved Medical Corps candidates awaiting confirmation.....	39
Medical reserve officers, active duty.....	3, 636
Contract surgeons.....	9
Dental surgeons, commissioned.....	86
Veterinarians, commissioned.....	57
Army Nurse Corps.....	259
Army Nurse Corps reserve on active duty.....	917
Medical Department, enlisted personnel.....	16, 773
Civilian employees, Medical Department at large.....	934
Total medical personnel.....	23, 199

MEDICAL CORPS.

The Medical Corps is composed of the commissioned medical officers of the Regular Army:

Authorized strength June 30, 1917.....	2, 100
In service June 30, 1916.....	443
Reappointed as captain.....	1
Appointed to June 30, 1917.....	58
Total.....	502
Losses during the year.....	13
In service June 30, 1917.....	489

On October 16, 1916, 65 candidates who had passed the preliminary examination for appointment in the Medical Corps reported at Washington to take the course of instruction at the Army Medical School. Fifty-eight successfully completed the course of instruction at the school and were graduated March 3, 1917, and recommended for appointment in the Medical Corps of the Army.

On March 14, 1917, 49 candidates who had passed the preliminary examination reported at the Army Medical School for the required course of instruction. Of these 41 successfully completed the course and were graduated May 31, 1917. Thirty-nine of them were recommended for appointment in the Medical Corps of the Army, but so far have not been confirmed, thereby making the gain by appointment only 58.

Losses during the fiscal year.

	Lieutenant colonel.	Major.	Captain.	Total.
Died.....	2		2	4
Retired.....		3		3
Resigned.....			5	5
Wholly retired.....			1	1
Aggregate.....	2	3	8	13

The following promotions were made up to June 30, 1917: Nine lieutenant colonels to be colonels, 20 majors to be lieutenant colonels, 75 captains to be majors, 16 lieutenants to be captains.

The department held eight preliminary examinations for appointment in the Medical Corps. The dates and the results of these examinations are tabulated below:

Date.	Invited.	Declined.	Fall to appear.	Examined.	Physical disability.	Withdrawn.	Rejected.	Qualified.
July 17, 1916.....	106	22	11	73	3		35	38
Aug. 14, 1916.....	83	8	18	57	7		28	22
Sept. 5, 1916.....	38	3	4	31	3	1	19	8
Jan. 2, 1917.....	116	17	17	82	7		32	36
Feb. 5, 1917.....	53	2	9	42	1	2	16	23
Apr. 2, 1917.....	15			15	2	2	9	4
May 7, 1917.....	71	4	8	59	3		20	36
June 4, 1917.....	376		120	256	29	2	105	120
Total.....	858	56	187	615	55	5	291	294

Seven qualified applicants were left over from last year, making a total of 291. Of these 65 entered the school in October and 49 in March. Another class is to begin in July, 75 going to the Army Medical School and 90 to the training camp at Fort Benjamin Harrison, a special ruling permitting those who successfully pass the course to be appointed in the Medical Corps, and examinations are being held on the first Monday of each month.

MEDICAL OFFICERS' RESERVE CORPS.

The Medical Reserve Corps went out of existence on June 3, 1917, by operation of law and the Medical Officers' Reserve Corps came into existence. The officers of the old corps, for the most part, transferred to the new, though some were lost by not accepting the new commissions before the old ones expired. Since the new corps provides for increased rank, many men who had been on active duty for some time were promoted to captains and majors.

An enormous increase in the personnel of the Medical Officers' Reserve Corps is in progress. The following figures show the number of actives and inactives on June 30, 1917:

On roster June 30, 1916.....	1, 903
Appointed during year.....	2, 813

4, 716

Losses during the year:

Resigned.....	175
Discharged.....	7
Died.....	11
Commissions vacated by appointment to regular corps.....	58
	251

On roster June 30, 1917..... 4,465

Of the 4,465 on roster June 30, 1917, 3,636 were on active duty and 829 on inactive list.

On active duty June 30, 1916.....	146
Ordered to active duty during year.....	3,730

3,876

Relieved from active duty.....	182
Commissions vacated.....	58
	240

On active duty June 30, 1917..... 3,636

An officer of the Medical Officers' Reserve Corps residing in the vicinity of each military post has been designated as a locum tenens, and the policy has been adopted of calling such officer into actual service for duty at his post when all the regular medical officers thereat are called upon to accompany troops into the field.

CONTRACT SURGEONS.

In service June 30, 1916.....	17
Contracts made during year.....	2

Total.....	19
Contracts annulled during year.....	10

Contracts in force June 30, 1917..... 9

These contract surgeons are on duty at arsenals, remount depots, transports, etc., at \$75 or \$150 per month, depending upon whether they are on half or full time contracts, respectively.

It is planned to use contract surgeons much more extensively than has been the custom, particularly for short-time or special service and under conditions when it would be impracticable to utilize reserve medical officers.

DENTAL CORPS.

Dental surgeons (first lieutenants) in service June 30, 1916.....	40
Appointed during the year.....	48

88

Retired with grade of captain.....	2
------------------------------------	---

On duty June 30, 1917.....	86
Awaiting confirmation.....	32

Total..... 118

Acting dental surgeons:

Number in service June 30, 1916.....	35
Contracts annulled by acceptance of commission.....	32
Contracts annulled.....	3
	35

On duty June 30, 1917..... 0

From February to April, 1917, the acting dental surgeons under contract were commissioned as first lieutenants in the Dental Corps after examination. Examinations for admission to the Dental Corps were held on July 10, 1916, and May 7, 1917. Of 258 invited 187 reported for examination, and of these 49 were found qualified. Seventeen were commissioned in October and 32 have been recommended but not confirmed. Another examination is scheduled for July 2, for which 460 have been invited.

DENTAL OFFICERS' RESERVE CORPS.

This branch of the Officers' Reserve Corps established by the national defense act, June 3, 1916, is on the verge of rapid growth. Four hundred and ninety-four were recommended prior to June 30. Of these 88 accepted and 20, who were assigned to Red Cross base hospitals, were on duty June 30. The records are now in such condition that approximately 3,000 will be recommended within the next three months.

VETERINARY CORPS.

This is a new branch of the Medical Department established by act of Congress approved June 3, 1916. There were several examinations held at odd times for quartermaster veterinarians, beginning September 10, 1916. Of 67 examined 17 were disqualified and 52 accepted. Of those 5 qualified with the grade of major after 20 years' service, 7 with the grade of captain after 15 years' service, 33 with the grade of first lieutenant, and 7 with the grade of second lieutenant. In the examination held July 17, 1916, for appointment from civil life 74 were invited, 25 were rejected as above age, 14 failed to appear, 3 withdrew, and 27 were examined. Of these 23 were rejected and 4 were accepted. Three were appointed as second lieutenants from March 17, 1917, as one declined the appointment. Contract veterinarians are now no longer employed.

VETERINARY OFFICERS' RESERVE CORPS.

The veterinary section of the Officers' Reserve Corps was established by the national defense act of June 3, 1916. It is growing rapidly, for 446 veterinarians were recommended as second lieutenants, Veterinary Officers' Reserve Corps, prior to June 30, 1917. Of these 85 had accepted and 47 were on active duty.

ENLISTED FORCE OF THE MEDICAL DEPARTMENT.

Strength at date of last report, June 30, 1916:

Sergeants first class.....	334
Sergeants.....	524
Corporals.....	40
Cooks.....	199
Privates first class and privates.....	3,573
Total.....	<u>4,670</u>

Gained July 1, 1916, to June 30, 1917:

By enlistment.....	10,892
By reenlistment.....	162
By transfer from the line.....	2,410
Returned from desertion.....	230
Total.....	13,694

Loss during the same period:

By order.....	223
By sentence general court-martial.....	212
For disability.....	188
For re-enlistment.....	159
By transfer to the reserve.....	70
By retirement.....	24
By transfer to the line.....	227
By desertion.....	398
By death, due to disease.....	51
By other losses.....	39
Total.....	1,591

Leaving in service June 30, 1917:

Master hospital sergeants.....	18
Hospital sergeants.....	24
Sergeants first class.....	640
Sergeants.....	899
Corporals.....	385
Cooks.....	375
Horseshoers.....	4
Saddlers.....	8
Farriers.....	8
Mechanics.....	9
Privates first class and privates.....	14,403
Total.....	16,773

ARMY NURSE CORPS.

The authorized strength of the Army Nurse Corps for the fiscal year ending June 30, 1917, was for 206 nurses, but the mobilization of the Regular troops and militia on the Mexican border having resulted in the establishment of many hospitals at which nurses were needed, an addition of 276 nurses was authorized early in the year to meet the emergency. Nurses were appointed in the regular corps as rapidly as possible, and their number was further augmented by the assignment of a large number from the reserve, the enrolled nurses of the American Red Cross constituting the reserve. During the year, nurses were sent to the following places;

- Base Hospital No. 1, Fort Sam Houston, Tex.;
- Base Hospital No. 2, Fort Bliss, Tex.;
- Base Hospital No. 3, Brownsville, Tex.;
- Base Hospital No. 4, Eagle Pass, Tex.;
- Base Hospital No. 5, Nogales, Ariz.;
- Camp hospital, Deming, N. Mex.;
- Camp hospital, Douglas, Ariz.;
- Camp hospital, Laredo, Tex.;
- Camp hospital, Llano Grande, Tex.;

Camp hospital, McAllen, Tex.;

Camp hospital, Marfa, Tex.;

Cantonment hospital, Columbus, N. Mex.;

and to the hospital train which has its headquarters at Camp Wilson, Tex. With the withdrawal of the troops, the work at these places gradually decreased, and nurses were withdrawn from Columbus, Llano Grande, McAllen, early in the year, and later on, from Marfa and Deming. The quarters provided for the nurses were temporary structures, but comfortably furnished, and in the main, very satisfactory. The maximum number of nurses for service on the border was 201 on February 28, after that the number decreased as the need grew less. Shortly after the declaration of war April 6, 1917, plans were made to send six base hospitals to Europe for service with the British forces. The hospitals designated were:

Base Hospital No. 4 of Lakeside Hospital, Cleveland, Ohio.;

Base Hospital No. 5 of Peter Brent Brigham Hospital, Boston, Mass.;

Base Hospital No. 2 of Presbyterian Hospital, New York, N. Y.;

Base Hospital No. 10 of Pennsylvania Hospital, Philadelphia, Pa.;

Base Hospital No. 12 of Mercy and Wesley Hospital, Chicago, Ill.;

Base Hospital No. 21 of Barnes Hospital, St. Louis, Mo.;

with a total of 436 nurses. Two of the nurses attached to Base Hospital No. 12, Miss Helen Wood and Mrs. Edith Ayres, were accidentally killed while sitting on the deck of the S. S. *Mongolia*, en route to Europe, by fragments of brass which struck them, due to the faulty discharge of a gun on the after deck of the steamer. Miss Emma Matzen attached to the same hospital sustained some injuries which fortunately did not prove to be serious.

The following base hospitals were sent to France for duty with the American Expeditionary Forces:

No. 18, Johns Hopkins, Baltimore, Md.;

No. 6, Massachusetts General Hospital, Boston, Mass.;

No. 15, Roosevelt Hospital, New York, N. Y.;

No. 17, Harper Hospital, Detroit, Mich.;

with a total of 295 nurses. Nurses have also been sent to the following posts:

Fort Myer, Va.;

Madison Barracks, N. Y.;

Plattsburg Barracks, N. Y.;

Fort Snelling, Minn.;

Fort Benjamin Harrison, Ind.;

Fort Ethan Allen, Vt.;

Fort Oglethorpe, Ga.;

Fort McDowell, Cal.;

Mobilization camp, Syracuse, N. Y.

Upon request of the Secretary of War the bureau of immigration on June 13, authorized the use of Island No. 3, Ellis Island, N. Y., for mobilization of members of the Army Nurse Corps ordered abroad. Comfortable quarters were provided, accommodating 225 nurses, subsistence being furnished at the restaurant on the island, under contract with the department quartermaster, Eastern Department, which arrangement has proved most satisfactory.

During the year 1,853 requests were received for application blanks. There were 57 discharges and 154 appointments of the regular corps,

1,053 reserves nurses were assigned to active duty and 131 relieved. The daily average for the regular corps was 221.97 and for the reserve 199.83, total 421.80. On June 30 there were 259 nurses in the regular corps and 917 reserve nurses on duty, making a total of 1,176 nurses.

Owing to the great increase in the cost of living, the pay of the Army Nurse Corps should be increased to \$60 on the first appointment, and allowance for commutation of ration from 40 to 75 cents per day. The rate of 40 cents is entirely inadequate, especially at the smaller stations. For nurses in Europe at least \$1 is required. The defining of the status of the members of the Army Nurse Corps is also highly advisable, and while the conferring of actual rank upon them may not be feasible, steps should be taken to give them a definite standing in the Military Establishment. There is also no retirement for the corps, and as nurses have been employed by the Medical Department since 1898, a period of 19 years, some provision should be made for them.

ARMY MEDICAL SCHOOL.

Maj. Harold W. Jones, Medical Corps, reported for duty at the school on October 8, 1916, and was assigned to duty as adjutant, secretary of the faculty, professor of sanitary tactics, and assistant professor of medical department administration.

Col. William O. Owen, Medical Corps, was detailed as professor of medical department administration during the absence on field duty of Col. James D. Glennan, Medical Corps, and performed such duties until relieved by War Department orders, dated March 7, 1917.

Maj. Philip W. Huntington, Medical Corps, was assigned to duty at the school as professor of Roentgenology vice Capt. Arthur C. Christie, Medical Corps, per War Department orders dated September 14, 1916.

Maj. Matthew A. Reasoner, Medical Corps, was relieved from duty at the school as assistant professor of bacteriology per War Department orders dated May 28, 1917.

Capt. Corydon G. Snow, Medical Corps, was assigned to duty at the school as assistant professor of bacteriology per War Department orders dated September 16, 1916.

First Lieut. Cyrus B. Wood, Medical Corps, was assigned to duty at the school as assistant professor of sanitary chemistry per War Department orders dated March 10, 1917.

The twenty-first session of the school began on October 1, 1916.

Owing to the increase of the Army and the large number of existing and prospective vacancies in the Medical Corps occasioned thereby, it was essential that provision be made for the training of much larger classes than had been previously accommodated. The teaching and laboratory facilities being entirely inadequate at the building located at 721 Thirteenth Street NW., a search was begun for a larger building, and after considerable difficulty, one apparently meeting the requirements, located at 462 Louisiana Avenue NW., was secured. This building was formerly occupied by the offices of the District government and later by the Department of Commerce. It has six stories with about 57,000 square feet of floor space. It is very well adapted for teaching and laboratory purposes and accommodated a class of 75 students. The several floors of the building are utilized by the school as follows:

Sub-basement: Heating and steam plant.

Basement: Animal room, large storeroom, shop for mechanics, and storeroom for photographic supplies.

First floor: Waiting room, information room and telephone exchange, students' locker room, X-ray and photographic room, library, and small storeroom.

Second floor: Offices of the commandant, adjutant, chief clerk, faculty room, record room, lecture hall, and eye room.

Third floor: Chemical instruction laboratory, chemical working laboratory, special bacteriological laboratory, writing room for officers awaiting orders for foreign service, and storeroom.

Fourth floor: Office of assistant professor of bacteriology, physical examining room, vaccine laboratories, incubators, vaccine preparation rooms, packing room, vaccine storage refrigerators, and special laboratory.

Fifth floor: Offices of the officer in charge of the bacteriological laboratories and assistant, clerks' office, large students' laboratory, special laboratories, and printing room.

Sixth floor: Physical exercise room, which is also used as a physical examination and written examination room; histological laboratory; private office for the use of the chief of the laboratory division, Surgeon General's Office, and sleeping rooms for guards and officers whose duties make it necessary for them to remain in the building during the night.

TWENTY-FIRST SESSION.

First section began October 16, 1916, and ended February 28, 1917.

Second section began March 14, 1917, and ended June 5, 1917.

The number of accepted candidates appointed in the Medical Reserve Corps and ordered to the school for instruction was 115. Of this number 1 resigned after reporting and before commencing the course, and 1 was relieved from attendance and ordered to his home by reason of inaptitude before the completion of the course.

No members of the Organized Militia attended either section.

The post-graduate course for officers of the Medical Corps was not given.

Of the 113 student candidates who completed the course of instruction, 101 qualified at the final examinations. Of this number 98 were recommended for commission in the Medical Corps, 1 failing to receive such recommendation because of deficiency in general aptitude for the military service, and 2 by reason of physical disqualifications.

The third section of the twenty-first session will commence sometime during the month of July.

A report of the Army Medical School would be entirely inadequate if it did not include a summary of the large fields of activity in which it is engaged aside from its function as a teaching institution.

Its activities are summarized as follows:

During the year just closed the mobilization of practically the entire National Guard, the increase in the Regular Army and Navy, the requirement that paratyphoid vaccine be administered to all those in the military service, and the preparations for the mobilization of the National Army have required an enormous production of vaccine. Had the school remained in the building formerly occupied by it the demands of the service could not have been successfully met. The production of vaccines has gone forward without delay which reflects great credit on the officers and enlisted men engaged in that work. Not only has the quantity produced been adequate at all times, but the requirements for additional glassware, new laboratory installations and apparatus, have been met with no interruption and vaccines have been packed and shipped,

so far as practicable, within 24 hours after receipt at the school of the requests. As many as 57 shipments have been made in one day. The cost value of the vaccines manufactured at this school during the year was approximately \$240,000. For the commercial vaccines this represents a retail market value of \$1,200,000, a saving to the Government of approximately \$960,000.

Numerous improvements have been made in the vaccine room, including the installation of large refrigerators, a mammoth incubator, etc.

There were 6,701 Wassermann reactions performed during the past year. This at ordinary commercial rates of \$5 per test would have cost the Government \$33,505.

A liberal estimate of the cost of this work, including the salaries of one major and one sergeant, is only \$6,364.

This item alone represents a saving to the Government of \$27,141.

Work in the chemical laboratory has been conducted along routine and well established lines.

The X-ray laboratory has been greatly enlarged, new apparatus installed, and a photographic room added. In addition to the teaching work, this department has done a large amount of work for the officers and enlisted men and their families stationed in and near Washington. These patients were sent here by the attending surgeon.

The large amount of X-ray work required by St. Elizabeths Hospital was also done here.

A large amount of photographic negatives of general subjects, lantern slides, and microphotographs were made.

An X-ray technician, who is an electrical mechanical expert, carried on the roll of civilian employees, has recently been assigned to this department, and his services are available for installation and repair work at any military establishment of the Army.

A very important function of the school is the making of physical examinations of officers for promotion and of applicants for appointment in the various Reserve Corps sections of the Army, etc. The amount of time consumed and the labor involved by having these examinations made by one officer, the uncertainties connected with the performance of this work, and the constant changes in details for the various examining boards made it advisable to inaugurate a system, which examinations could be made systematically and the records secured against loss. At the present time the services of from 5 to 10 officers of the Medical Reserve Corps who are awaiting orders for foreign service are utilized in physical examination work. By this plan fully 50 to 60 physical examinations may be made daily without confusion. At the close of the day the physical examination forms, properly filled in, are delivered to the office of the adjutant, and in order to guard against error, are carefully gone over before being forwarded to the proper office. During the two and one-half months from April 15 to June 30, approximately 1,000 examinations were made, with a constant increase in the daily number toward the close of the period of this report. If necessary, the school can handle 100 physical examinations a day without serious difficulty.

About the middle of May it became necessary for the War Department to send a large number of Medical Reserve Corps officers to foreign service, and since that date 198 reported at this school for instructions. The school assumed entire charge of them, gave them

instructions as to uniform, equipment, money affairs, etc.; vaccinated them against typhoid fever, paratyphoid fevers A and B, and smallpox; made physical examinations of each; reported them ready for orders; furnished them with true copies of same; and gave them final instructions regarding their departure and arrival at New York for duty on the other side of the Atlantic in compliance therewith. The handling of this work necessitated the establishment of what might be termed a "Foreign Service Bureau" and involved a great increase in the clerical work of the school. The system of handling these officers has been very successful and will probably be continued as long as there is need for it.

An important function of the school is the printing of a very large amount of material, not only for its own use, but for the office of the Surgeon General. Formerly an ordinary multigraph was used, but it was found that the amount of printing had increased to such an extent that two or three of these machines with an equal number of operators would be required to meet the demands; accordingly an electric-driven mimeograph was installed, and up to this time this machine, with the multigraph, has proved adequate. During the year the total number of prints made was 652,163, including 18,045 sheets of questions for the several examinations of applicants for appointment in the Medical Corps, Medical Reserve Corps, Veterinary Corps, etc., which involved the folding of these sheets and the sealing of 20,604 envelopes.

During the year the school was charged with the arrangements for and the handling of the details in connection with furnishing medical officers assigned as special lectures at medical schools throughout the country with moving-picture films and lantern slides for use as illustrations for their talks. For this purpose five large moving-picture films illustrating the activities of the Medical Department in the field were sent to the school. Correspondence was kept up with the officers concerned and the itinerary was drawn up. The films and slides were sent by express to various points throughout the country, including New York, Philadelphia, Baltimore, St. Louis, Omaha, Columbus, Buffalo, Syracuse, and other cities. A considerable amount of correspondence was made necessary in the handling of this matter owing to the complications arising from the numerous and sometimes insistent demands from different officers for the use of these illustrations on the same date at widely separated localities. Every effort was made to satisfy all individuals concerned, keeping in mind the desirability of having these pictures shown in the large cities first.

ACTIVITIES, NOT DIRECTLY CONNECTED WITH THE SCHOOL, OF MEMBERS OF THE FACULTY.

Most of the members of the faculty have had many duties which were not strictly connected with their teaching positions assigned to them.

The commandant, Col. William H. Arthur, Medical Corps:

Col. Arthur was detailed as a member of the following boards: Army medical board, per War Department orders dated July 3, 1915; examination of retired officers of Medical Corps for fitness to transfer to active list, per War Department orders dated October 23, 1915;

Army retiring board, per War Department orders dated January 5, 1916; medical officers for promotion, per War Department orders dated February 21, 1916; board of review, per War Department orders dated May 18, 1916; preliminary examining board, per War Department orders dated May 26, 1916; examining board for promotion, per War Department orders dated June 17, 1916; supply of National Guard and Volunteers, per War Department orders dated July 31, 1916; examining board for promotion, per War Department orders dated August 23, 1916; retiring board, per War Department orders dated August 31, 1916; selection of majors, captains, and first lieutenants for medical section of Officers' Reserve Corps, per War Department orders dated September 21, 1916; preliminary examining board, per War Department orders dated October 14, 1916; examining board for promotion, per War Department orders dated March 2, 1917; and Army retiring board, per War Department orders dated June 25, 1917.

The adjutant, Maj. Harold W. Jones, Medical Corps:

Maj. Jones was detailed as a member of the general motor board working in conjunction with the truck standardization division of the American Association of Automobile Engineers and continued on this work during the year in connection with the Master Car Builders of America and under the direction of Col. Chauncey B. Baker of the Quartermaster General's Office.

He also prepared the plans and specifications for the conversion of railway coaches and cars into hospital trains. This work was completed and a sample train constructed by the Pennsylvania Railroad Co., the plans finally receiving the approval of the Surgeon General's Office.

He was detailed a member of the ambulance board and in this connection made several trips to the Ford factory at Detroit and to the Babcock Manufacturing Co.'s works in Watertown, N. Y. The work of the ambulance board has taken a great deal of the time of all members, as it involves the passing upon of every appliance used in the transportation of the sick, and makes necessary investigations of ambulance bodies, materials, automobile accessories, litter carriers, the making of automobile tests, etc.

During October, 1916, Maj. Jones was detailed to go to Philadelphia and prepare a site for the base hospital encampment in Franklin Park. This involved the setting up of more than 100 tents, 30 of them the large ward tents; the flooring of many of these, and the installation of electric lights and water; the placing of more than 50 tons of hospital supplies, beds and bedding, etc.; and the caring for a hospital personnel of 65. This entire work was accomplished in eight working days with five sergeants, first class, and 30 privates from the Walter Reed General Hospital, and involved the expenditure of nearly \$3,000, which was provided by the Red Cross. It is estimated that between 50,000 and 60,000 people saw the camp, which was the first mobilization of a Red Cross base hospital in the history of the country.

In addition, the editing of the new Manual of Sanitary Drill Regulations was turned over to Maj. Jones, and this work, under his direction, was very ably performed by First Lieut. Raymond W. Whittier, Medical Reserve Corps., assistant professor of sanitary tactics.

Professor of Röntgenology, Maj. Philip W. Huntington, Medical Corps:

In addition to his regular duties, Maj. Huntington served as a member of various examining boards; attended the conference of Röntgenologists in New York City; and made various inspections of X-ray equipments.

He also delivered a course of lectures on military medicine and surgery and camp sanitation at the Cornell Medical School with very successful results.

The following exhibits the course of instruction, names of the professors and assistant professors, the value given to each subject, and the number of lectures or hours of instruction:

MILITARY SURGERY.

Col. William H. Arthur, Medical Corps, professor.

Value of subject: Maximum, 800; minimum, 640.

The course consisted of didactic lectures on gunshot, sword, saber, and bayonet wounds, illustrated by lantern slides, skiagraphs, and pathological specimens. It embraced the mechanics of projectiles; the different kinds of projectiles used in modern warfare; their effects upon the various tissues and organs of the body at different ranges; complications; the action of explosives on tissues; the treatment of gunshot wounds and their complications on the battle field and at field and base hospitals; etiology, signs, symptoms, and treatment of traumatic aneurisms; varieties of wounds produced by cutting and puncturing weapons, and their treatment; wound infections, and their treatment; and statistics of battles and campaigns. Twenty nine hours were devoted to instruction in this subject.

MEDICAL DEPARTMENT ADMINISTRATION.

Col. James D. Glennan, Medical Corps, professor; Col. William O. Owen, Medical Corps, professor; Maj. Harold W. Jones, Medical Corps, assistant professor.

Value of subject: Maximum, 800; minimum, 640.

The course included Army Regulations; the Manual for the Medical Department; customs of the service; all general orders, circulars, and bulletins; and methods of administration, with all blank forms in force.

Organization of the Army; territorial departments and tactical divisions; organizations and duties of each corps and staff department; military rank, command, and precedence; military discipline, honors, ceremonies, official, semiofficial, and personal courtesies and customs.

Laws and regulations in regard to the appointment of cadets and officers; promotion, retirement, and resignation of officers; death and burial of officers; personal and efficiency reports; method of obtaining pay, quarters, and all allowances of every kind under each staff department with all blank forms used.

General recruiting service and methods of enlisting at stations, with all circulars, reports and forms.

Descriptive lists, methods of muster and pay, drawing and issuing clothing and keeping accounts, discharges and final statements, all allowances of every kind under all departments and all blank forms used.

All laws, regulations, orders, and methods concerning the Hospital Corps and the Army Nurse Corps.

Regulations.—Visual and other physical standards for admission to the United States Military Academy; commissions in line or staff of the Army, promotion from the ranks, reenlistments, and promotion.

Annual physical examination of officers and tests of field officers; duties of medical officers on all boards of examination, promotion, and retirement, with all examination forms.

Laws, rules, regulations, and methods governing vaccination, typhoid prophylaxis, and venereal prophylaxis, with all blank forms used.

Military correspondence, form of letter writing, and methods of recording and filing in use in the service.

Rations.—Methods of drawing rations or commutation therefor, and use of the ration under all conditions; purchase; hospital fund, its use, care, and returns; mess management.

Post administration.—Duties of medical officers, sanitary inspections and reports, sick call, morning reports, post hospital, and general hospital administration.

Methods of keeping register of sick and wounded.—Reports, papers, and methods connected therewith, and all forms.

Morbidity and mortality rates.

Property.—Allowances, methods of obtaining, caring for, using, accounting for, and disposing of property of all departments, and all forms connected therewith.

Methods of purchasing necessary supplies and of having laundry work done.

Forty-six hours devoted to instruction in this course.

MILITARY HYGIENE.

Lieut. Col. Champe C. McCulloch, jr., Medical Corps, professor.

Value of subject.—Maximum, 800; minimum, 640.

The course was unavoidably modified in many respects, owing to the fact that three short sessions instead of one long one are being held. Formerly the instruction was mainly by lectures, supplemented by the quiz. This year on account of the necessity of crowding so much material into a short time, it was found expedient to fall back on the method of quizzing, including of course much individual comment and criticism of the textbook descriptions, based on personal experience of the professor in Panama and various Army camps. The students were encouraged to relate their own experiences, such of them as had served abroad, for instance. The course was based on Havard's *Military Hygiene*, which admirably filled the purpose. It is concise, correct, and up to date, and the style such that it makes easy and interesting reading. It is believed that the successful graduates are well grounded in the essentials of the subject and able to take up intelligently practical work in the field.

The following subjects were covered, in more or less detail, particular emphasis having been laid on matters pertaining to camp hygiene:

Importance of the subject; morbidity and mortality in the military service in peace and war; death rates; admission rates; noneffective rates; rates of discharges for disability; influence of climate, race, age, and length of service; the examination of recruits.

Air, its composition and relative humidity; effects of altitude; atmospheric dust; ventilation; air contamination; modern theory of bad effects of ill ventilation; tests of air; amount of space required; air purification; food; the soldiers' ration; clothing; qualities of textile fabrics; footwear.

Posts, barracks, and quarters; construction and care of same; kitchens and mess rooms; the guardhouse; insects and vermin; screening; hygiene of the march; personal hygiene of the soldier; camp sites, their selection and care; tents; improvised and portable barracks.

Water supplies; quantity required; methods of examination of potable waters; purification of water (a) by heat, (b) by chemical means, (c) by filtration; the Forbes-Waterhouse apparatus; the Darnall filter; the Lyster water bag; domestic filters; sand filtration; mechanical filtration; improvised filtration.

Methods for the disposal of camp excreta; the straddle trench; the pit latrine; the Havard box; post holes; the sanitary trough latrine; disposal of excreta by incineration; disposal of wastes, garbage, and refuse; the company crematory; the rock-pile crematory; lavatories; the disposal of manure.

Typhoid fever in the military service; history and importance of the subject; paratyphoid fever; the dysenteries; cholera; diarrhea and other intestinal diseases; methods of spread; methods of control; antityphoid vaccination in the Army.

Smallpox; vaccination; the other acute exanthemata; measles; mumps; meningitis; diseases of the respiratory tract; tonsillitis, bronchitis, and pneumonia; chronic diseases in the Army; tuberculosis; heart disease; the hookworm; skin diseases.

Malaria in the Army; the prophylaxis of malaria; mosquito prophylaxis; screening; drainage; brush cutting; prophylactic administration of quinine; dengue; yellow fever; the *Stegomyia* mosquito; insecticides; typhus fever and its prevention; the effects of cold and hot climates.

It is proposed to use as textbooks for the course beginning in July, 1917, Vedder's *Notes on Sanitation* and Lelean's *Sanitation in War*, the latter containing concise and up-to-date descriptions of methods now in use by the British. Havard will be assigned for reference and collateral reading.

This course was completed in 23 hours' instruction.

SANITARY CHEMISTRY.

Lieut. Col. Carl R. Darnall, Medical Corps, professor; First Lieut. Cyrus B. Wood, Medical Corps, assistant professor.

Value of subject.—Maximum, 600; minimum, 480.

The course consisted entirely of laboratory work with such preliminary talks by the professor as were necessary to explain the technical procedures. The work of the first section consisted of review of chemical qualitative analysis for metals and solids; quantitative volumetric analysis; qualitative and quantitative chemical examination of stomach contents, urine, water, and milk; examination of bleaching powder samples for available chlorine, and the preparation of Dakin's solution.

The work of the second section was considerably shortened and condensed, but, with the exception of the urine analysis, all phases of the work mentioned above were dealt with.

Ninety-six hours were devoted to instruction in this course.

OPHTHALMOLOGY.

Maj. Theodore C. Lyster, Medical Corps, professor; Capt. Ralph H. Goldthwaite, Medical Corps, assistant professor.

Value of subject.—Maximum, 400; minimum, 320.

The course took up first a brief consideration of the optical principles involved in the mechanism of the eye and optical instruments. This was followed by a study of refraction and of the more common internal pathological conditions of the eye. This theoretical work was supplemented by practical exercises on the artificial eye and on each other to learn the various methods of ophthalmoscopic examination; by pictures thrown on screens with explanatory talks, illustrating the common retinal diseases; and by cases brought in from the soldiers' home showing some of these conditions.

Forty-six hours were devoted to instruction in this course.

BAACTERIOLOGY, PATHOLOGY, AND LABORATORY DIAGNOSIS.

Maj. Eugene R. Whitmore, Medical Corps, professor; Maj. Edward B. Vedder, Medical Corps, Maj. Mathew A. Reasoner, Medical Corps, and Capt. Corydon G. Snow, Medical Corps, assistant professors.

Value of subject.—Maximum, 900; minimum, 720.

The course was practical and included the study of the bacterial diseases and the identification of the bacteria causing them; bacteriological examinations of water and milk: spirochaetae; fungi; lectures and practical exercises on agglutinin and precipitins, and lysins; lectures and practical work on the Wassermann reaction; lectures and exercises on ferments and anaphylaxis; preparation of bacterial vaccines; clinical blood work.

The course in protozoology included the study of amoebae; trichomonas; lamblia, trypanosomes, malaria, etc.

The subject of helminthology was given by lectures, examination, and preparation of specimens.

The course in entomology consisted of the study, identification, and differentiation of the disease-carrying arthropods.

Three hours of the course was devoted to the study of venomous animals, especially snakes, and venoms and antivenoms.

The shortening of the time devoted to the course made it necessary to leave out considerable work, such as anaerobes, and the work in general pathology to which considerable time was devoted during the longer course.

There were frequent practical exercises, in which students were required to work out unknowns arranged as nearly as possible like the work they may expect to meet in the service.

One hundred and thirty hours were devoted to instruction in this course.

MILITARY MEDICINE AND TROPICAL MEDICINE.

Maj. Eugene R. Whitmore, Medical Corps, professor.

Value of subject.—Maximum, 800; minimum, 640.

The course in military and tropical medicine consisted of assigned reading in textbooks, and recitations, supplemented by talks where considered advisable. The course was given parallel with the course in bacteriology, pathology, and laboratory diagnosis, so that when a disease-producing organism was being studied in one course, that disease was being studied in the other course. Special attention was paid to the gross and microscopic study of the tissues in each disease; and many of the sessions were held at the Army Medical museum where the material in the museum was studied.

The course included—

Conditions of military medicine.

Conditions of tropical medicine.

Climate and race; effects of diet, temperature, humidity, and light, including heat; acclimatization; prophylaxis.

Traumatisms—poisons.

Enteric fever, with special reference to the method of handling those diseases in the military service; yellow fever; dengue and allied fevers; bacillary dysentery; asiatic cholera; leprosy; plague; Malta fever; infectious jaundice; yaws; relapsing fever; syphilis as handled in the Army; typhus fever; sprue; the mycoses, with special stress on sporotrichosis; pellagra; beriberi; amoebic dysentery and amoebic liver abscess; trypanosomiasis; the leishmaniasis; verruga peruviana and oroya fever; malaria and black water fever; ancylostomiasis; schistosomiasis; and filariasis.

By a method of exchange lectures with the hygienic laboratory of the Public Health Service, two or more lectures were given to the class by members of the staff of the hygienic laboratory. The subjects of the lectures were typhus fever, plague, leprosy, and rabies.

Dr. B. H. Ransom, chief of the division of zoology, Bureau of Animal Industry, Department of Agriculture, gave one lecture on what was being done in the way of preserving meat, with special reference to trichiniasis.

Fifty-seven hours were devoted to these subjects.

ROENTGENOLOGY.

Maj. Philip W. Huntington, Medical Corps, professor.

Value of subject.—Maximum, 300; minimum, 240.

The course was, so far as possible, a practical one, and each student was given an opportunity to personally handle the machine, make exposures by developing work, and read plates. The diagnosis of pathological conditions of the bones and various other organs of the body was taught and demonstrated according to the most improved methods, both on the plate and the fluoroscopic screen. Much attention was given to the localization of foreign bodies and the diagnosis of fractures. The X-ray treatment of skin and other pathological conditions was also taught.

Sixteen hours were devoted to instruction in this subject.

SANITARY TACTICS.

Maj. Harold W. Jones, Medical Corps, professor.

Value of subject.—Maximum, 500; minimum, 400.

Instruction in this subject embraced drill, the school of the soldier, the school of the squad, and the school of the company. As far as possible, individual students were allowed to drill platoons and companies and take their places as guides, platoon leaders, and company commanders; indoor exercises were also given illustrating maneuvers by the use of wooden blocks; litter drill; lectures on the organization of the Army, the duties of medical officers in the field, the sanitary units; guard duty, etc.

Setting-up drill was also given daily at noon in the physical examining room on the sixth floor.

Included in this course were two lectures on military law and courts-martial procedure.

Thirty-two hours were devoted to instruction in this subject.

EQUITATION.

Capt. Charles G. Harvey, Cavalry, instructor.

This course consisted of instruction in nomenclature of the points of the horse and parts of the equipment; method of mounting and dismounting; explanation of the military seat; kinds of "hands," and proper method of holding reins; "aids" explained and demonstrated; moving to front on straight line and halting; changes of direction to right and to left; work on road at walk; alternate walk and slow trot in hall and on road; suppling exercises; moving to front, halting, changes of direction, abouts; movements by threes in hall; increases and decreases of gaits; work at slow trot and trot; slow trot without stirrups or reins; saddling and bridling; the gallop.

Eleven hours were devoted to instruction in this subject.

OPERATIVE SURGERY.

No instruction was given on this subject.

PSYCHIATRY.

No instruction was given on this subject and no special professors were designated during the 1916-17 session.

During the year a number of special lectures were given, including one by Dr. Alexis Carrel on hospital service in France, one by Dr. Fred H. Albee on bone transplantation, one by Dr. Charles A. Powers on medical service in France, and several by nonmedical lecturers. Some of these lectures were illustrated with motion pictures and lantern slides. Col. Goodwin, of the British Royal Army Medical Corps, gave a series of very useful and instructive lectures covering the work of the British officers under field conditions in the trenches and of the field ambulances, including descriptions of evacuations of the wounded, gas attacks, etc. Col. Goodwin's lectures are now in process of publication by the military surgeon.

In this connection mention is made of the fact that the lecture room of the Army Medical School was used twice a week by officers of the Quartermaster Department under the direction of the Quarter-

master General for lectures of instruction to officers of the Quarter-master Reserve Corps.

ENLISTED PERSONNEL, MEDICAL DEPARTMENT.

The strength of the Medical Department detachment was changed as follows:

	July 1, 1916.	June 30, 1917.
Master hospital sergeants.....		7
Hospital sergeants.....		
Sergeants, first class.....	5	4
Sergeants.....	3	4
Corporals.....		1
Privates, first class.....	12	6
Privates.....		17
	20	39

The character of their services has been of a very high order and the duties and responsibilities of many of them have been such as are ordinarily intrusted only to commissioned officers.

CIVILIAN PERSONNEL.

At the opening of the twenty-first session there were on duty at the school four civilian clerks other than the chief clerk. The increase in the work made increases in the force necessary from time to time, until at the close of the period covered by this report there were employed seven clerks in addition to the chief clerk. A private of the Medical Department who had been on duty as telephone operator was relieved and a civilian appointed on duty at the switchboard. An X-ray technician, a mechanic, a carpenter, and two civilian watchmen were also on duty at the school at the end of the year. Their work was performed in an altogether satisfactory manner and they were called upon many times to work extra hours, which was invariably cheerfully done. The work of the chief clerk, Mr. Ayers, was most exacting and his office was called upon to expand and take up new lines of work over and over again.

GRADUATION.

Very informal closing exercises for the first section were held, at which the Surgeon General delivered a short address and presented the diplomas to the corps. Owing to the exigencies of the service, closing exercises for the second section were omitted.

Of the first section there were three honor graduates: Walcott Denison, Calvin H. Goddard, and Edgar E. Hume.

Of the second section there were two honor graduates: Walter J. Bristow and George S. Woodard.

Owing to the fact that the third section of the twenty-first session of the school will not close until after the period covered by this report, no selections for award of either the Hoff memorial medal or the Sternberg medal were made.

At the time the building now occupied was taken over it seemed to be more than adequate for any contingency that might arise. At the present time, however, there seems to be good ground for the belief, which is justified by past experience, that a further extension of the school might be necessary. A possibility for such an extension exists in an adjoining building which is now for rent and which can probably be altered to suit the requirements. Steps will probably be taken in the near future toward a recommendation for the rental of this building as preparation for any future demands which may be made upon the school.

RECOMMENDATIONS.

Toward the latter part of the period covered by this report it was believed desirable that instruction in French conversation should be made a part of the curriculum of the school. No definite plans were made, but it is expected that steps will be taken by the opening of the session for the next section, during the month of July, to have a special instructor placed on duty here for the purpose of giving instruction in French conversation to the classes.

In September, 1916, the Army Medical School and laboratories were moved from the cramped and inconvenient building (721 Thirteenth Street), of which it occupied only the upper floors, to the much more commodious building (462 Louisiana Avenue) it now occupies. This building is very well adapted to the purpose and will serve very well as a temporary makeshift until such time as a building can be specially planned and erected for the purpose. The present building, though a great improvement over the one vacated last September, is lacking in one of the features essential, in my opinion, to the proper instruction of student officers—that is, grounds of sufficient extent to make it possible to put the entire class in camp for part of the session, and to give facilities for drill and field exercises. The recommendation is renewed that such a building be erected as soon as funds are available, as near the city as practicable, in grounds extensive enough for the purposes indicated.

The present building, large as it is, is overcrowded and its capacity taxed by activities not directly connected with the school, especially the great number of physical examinations mentioned in the report (pp. 3 and 4). The three-story and attic building to the east of this building can be rented for \$200 a month, connected by doors on the first, second, and third floors of this building, and would greatly facilitate the work. Steps have been taken to get authority to add the next-door building to the school, to be used, first floor for offices, second floor for additional room for clerks and records, third floor for physical examining rooms, the present room used for that purpose being very much needed for a typhoid vaccine packing room, the present packing room being overcrowded.

ARTICLES BY MEDICAL OFFICERS.

NOTE.—It is desired to include in this list all articles written by medical officers during the fiscal year. It is therefore requested that the title and place of publication of articles written by medical officers be sent to the Surgeon General.

Articles by medical officers of the Army, July 1, 1916, to June 30, 1917.

Author.	Articles.	Disposition.
Allen, Lieut. Col. John H...	The administrative technique of antityphoid inoculations.	Military Surgeon, June, 1917.
Allen, Maj. W. H.....	The ambulance company.....	New York Medical Journal, June, 1917.
Arthur, Col. William H.....	The advantages of military training for young men.	Military Surgeon, January, 1917.
Do.....	Carrel's method of wound sterilization.	Military Surgeon, May, 1917.
Ash, First Lieut. J. Earle...	A note on the pathological effects of atmospheres rich in oxygen.	American Journal of Laboratory and Clinical Medicine, February, 1917.
Ashford, Col. B. K.....	The etiology of sprue.....	American Journal of the Medical Sciences, August, 1917.
Ashford, Maj. Mahlon.....	The American doctor and preparedness.	New York Medical Journal, Apr. 14, 1917.
Do.....	The most practical plan for the organization, training, and utilization of the medical officers of the Medical Officers' Reserve Corps of the United States Army and Navy, and of the medical officers of the Officers' Reserve Corps of the United States Army, in peace and war—the Wellcome first prize essay.	Military Surgeon, February, 1917.
Do.....	Proposed motor-ambulance company.	Military Surgeon, September and October, 1916.
Bakotel, Maj. H. S., Medical Reserve Corps.	The necessity of analyzing drugs for Army use.	Pacific Medical Journal, vol. 59, 1916 (pp. 658-662); also Medical Times, New York, vol. 44, 1916 (p. 330).
Bernheim, Capt. J. R., Dental Corps.	Oral hygiene in the Army.....	Read at the meeting of the National Dental Association, Louisville, Ky., July 25-28, 1916. Journal of the National Dental Association, May, 1917.
Boak, Capt. S. D., Dental Corps.	Militia dental surgeons.....	The Bulletin of the Association of Military Dental Surgeons of the United States.
Bushnell, Col. G. E.....	The diagnosis of tuberculosis in the military service.	Military Surgeon, June, 1917.
Chamberlain, Col. W. P.....	Care of troops on the Mexican border.	Journal of the American Medical Association, Nov. 25, 1916.
Do.....	Demography in so far as it relates to the vital statistics of armies.	Military Surgeon, December, 1916, January, February, and March, 1917.
Do.....	Military medicine.....	Boston Medical and Surgical Journal, April, 1917.
Church, Col. James R.....	Notes on the organization of the French sanitary service.	Military Surgeon, May, 1917.
Connor, Lieut. Col. C. H....	The special physical examination of aviators for the United States Army.	Military Surgeon, January, 1917.
Craig, Lieut. Col. Charles F..	The classification of the parasitic amebæ of man.	Journal of Medical Research, January, 1917.
Do.....	The complement fixation test in the diagnosis of tuberculosis.	Journal of the American Medical Association, Mar. 10, 1917.
Do.....	The occurrence of entameble dysentery in the troops serving in the El Paso district from July, 1916, to December, 1916.	Military Surgeon, March and April, 1917.
Do.....	The practical application of the Wassermann test in the diagnosis and as a control of the treatment of syphilis.	American Journal of Syphilis, January, 1917.

Articles by medical officers of the Army, July 1, 1916, to June 30, 1917—Continued.

Author.	Articles.	Disposition.
Culler, Maj. R. M.....	Syphilis of the stomach—a case of hourglass contraction.	Journal of the American Medical Association, Dec. 2, 1916.
Davidson, Lieut. Col. W. T.	Bone autogenous graft in the treatment of fracture of the greater tuberosity of the humerus.	Annals of Surgery, Philadelphia, Pa., July, 1917.
Do.....	Rider's tendon.....	Awaiting publication.
De Lanney, First Lieut. F. L., Medical Reserve Corps.	Treatment of amebic dysentery with the Chaparro Amargosa.	
Ebert, Col. Rudolph G.....	Some medical problems of over-seas garrisons.	Military Surgeon, August, 1916.
Fitch, Capt. W. E., Medical Reserve Corps.	Work on foods.....	Published in booklet form.
Do.....	Rations for boys' military training camps.	Military Surgeon, May, 1917.
Ford, Col. J. H.....	Elements of field hygiene and sanitation.	Published in booklet form.
Do.....	The sanitary service of the Austro-Hungarian Army in campaign.	Military Surgeon, June, 1917.
Foster, Maj. George B., Jr.....	Hookworm infection as a medico-military consideration (collaborated with First Lieut. Charles G. Sinclair).	Journal of the American Medical Association, vol. 69, 1917, 431-434.
Hall, Lieut. Horace C., Medical Reserve Corps.	Typhus fever.....	Military Surgeon, November, 1916.
Johnson, Maj. H. H.....	The toxic effects of emetine hydrochloride (collaborated with First Lieut. John A. Murphy, Medical Reserve Corps).	Military Surgeon, January, 1917.
Do.....	The trailer ambulance.....	Military Surgeon, July, 1916.
Jones, Maj. E. C.....	Military dogs.....	Military Surgeon, April, 1917.
Jones, Lieut. Col. Percy L.....	Motor transportation for sick and wounded.	Awaiting publication.
Do.....	A railway hospital train de luxe.....	Military Surgeon, October, 1916.
King, Maj. Edgar.....	The use of habit-forming drugs by enlisted men.	Military Surgeon, September and October, 1916.
La Garde, Col. L. A., retired.	Civilian physicians and national preparedness.	Military Surgeon, September, 1916.
Do.....	The surgeon and military preparedness.	Military Surgeon, May, 1917.
Lewis, Col. W. F.....	Recent developments in camp sanitation (collaborated with Lieut. Col. R. B. Miller).	Do.
Loew, Lieut. Harry K., Medical Reserve Corps.	A summary of medico-military facts developed by experiences on European battle fronts.	New York Medical Journal, July 7, 1917.
Loving, Lieut. Col. R. C.....	The medical officer.....	Journal of the New York Medical Association, vol. 68, 1917.
Lull, Maj. Geo. F.....	Report of 2 fatal cases of paratyphoid fever A.	Awaiting publication.
Lyster, Lieut. Col. William J. L.	Present status of artificially treated drinking water in the field.	Military Surgeon, April, 1917.
McCulloch, Col. C. C.....	The scientific and administrative achievement of the Medical Corps of the United States Army.	The Scientific Monthly, May, 1917.
Miller, Lieut. Col. E. C.....	Recent developments in camp sanitation (collaborated with Lieut. Col. W. F. Lewis).	Military Surgeon, May, 1917.
Mitchell, Maj. L.....	Double femoral hernia in a male.....	Journal of the American Medical Association, Feb. 24, 1917.
Mudd, Maj. Leo. C.....	Some experiences with venereal diseases at Schofield Barracks.	Read before the United States Medical Society of Hawaii, Feb. 5, 1916; Military Surgeon, December, 1916.
Munson, Col. E. L.....	The effect of marching on the rates for nonefficiency of newly raised troops.	Military Surgeon, February, 1917.
Do.....	An epidemiological study of measles outbreak at Camp Wilson, Tex., 1916.	Military Surgeon, June, July, August, and September, 1917.
Murphy, Capt. John A., Medical Reserve Corps.	The toxic effects of emetine hydrochloride (collaborated with Maj. H. H. Johnson).	Military Surgeon, January, 1917.
Nichols, Maj. Henry J.....	Alkaline treatment of early gall-bladder carriers, with observations on their detection by aid of the duodenal tube.	Journal of the American Medical Association, Mar. 31, 1917.
Do.....	The lobar pneumonia problem in the Army from the viewpoint of the recent differentiation of types of pneumococci.	Military Surgeon, August, 1917.
Do.....	The pathogenesis of gall-bladder infections in typhoid, cholera, and dysentery.	Journal of Experimental Medicine, November, 1916.

Articles by medical officers of the Army, July 1, 1916, to June 30, 1917—Continued.

Author.	Articles.	Disposition.
Noble, Lieut. Col. Robert E.	The Medical Corps of the Army as a career.	Journal of the American Medical Association, Mar. 31, 1917.
O'Connor, First Lieut. C. M., Jr.	A record march by sanitary troops.	Military Surgeon, November, 1916.
Oliver, Capt. Robert T., Dental Corps.	Dental surgeons in the theater of operations.	The Bulletin (official organ of the Association of Military Dental Surgeons of the United States). Military Surgeon, April, 1917.
Page, Col. Henry.....	Civil physicians and national defense.	Address delivered before preparedness meeting at Montclair, N. J., Dec. 18, 1916, held by the Medical Association of New Jersey. (Awaiting publication.)
Do.....	The medical profession and preparedness.	Awaiting publication.
Do.....	The Medical Reserve Corps and paratyphoid at Camp Whitman.	Military Surgeon, August, 1917.
Pierson, Lieut. Col. R. H....	Latrines and kitchen incinerators...	Awaiting publication.
Pipes, Lieut. Col. H. F.....	The defense act of 1916.....	Do.
Qualls, Maj. Guy L.....	Some observations on acute cerebrospinal syphilis and its treatment.	Military Surgeon, July, August, September, and October, 1916.
Raymond, Col. Henry I....	Duties of medical supply officers and their methods (collaborated with Col. Edwin P. Wolfe).	Journal of the American Medical Association, Mar. 31, 1917.
Reasoner, Maj. M. A.....	The effect of soap upon treponema pallidum.	Journal of the American Medical Association, Apr. 2, 1917.
Do.....	Experimental syphilis produced through local applications to mucous membrane.	Military Surgeon, September, 1916.
Do.....	Some general information concerning the diagnosis and treatment of syphilis.	Military Surgeon, August, 1916.
Reno, Lieut. Col. Wm. W....	Laying out a field hospital.....	Military Surgeon, November, 1916.
Do.....	Pitching and striking a field hospital in record time.	Journal of Syphilis, St. Louis, April, 1917.
Rhoads, Lieut. Col. Thomas L.	The influence of the Wassermann test on surgery.	Journal of the American Medical Association, vol. 69, 1917, 431-434.
Sinclair, First Lieut. Charles G.	Hookworm infection as a medicomilitary consideration (collaborated with Capt. George B. Foster, Jr.).	Awaiting publication.
Talbott, Lieut. Col. E. M....	Observations on the eye, ear, nose, and throat work at Base Hospital No. 2, Fort Bliss, Tex., from July, 1916, to February, 1917.	American Journal of Syphilis, July, 1917.
Thompson, First Lieut. Loyd, Medical Reserve Corps.	Complement fixation in syphilis, with the preliminary report of a new technic.	To be published in book "A System of Foods and Feeding in Health and Disease."
Vedder, Lieut. Col. Edward B.	Diet in the dysenteries.....	Awaiting publication.
Do.....	The emergency ration.....	Military Surgeon, October, 1916.
Do.....	The known and the unknown with regard to the etiology and prevention of beriberi.	Published as one of a series of handbooks.
Do.....	Sanitary notes.....	Read before the United States Medical Society at Honolulu, July, 1916; Military Surgeon, November, 1916.
Whitham, Maj. Jay D.....	Paratyphoid infections.....	Military Surgeon, December, 1916.
Wilde, Maj. A. G.....	Army medical records.....	Military Surgeon, April, 1917.
Willcox, Col. Chas.....	Physical examination of large bodies of men.	Medical Record, Dec. 23, 1916.
Williamson, Maj. L. P.....	The Medical Corps of the Army as a career.	Military Surgeon, July, August, September, and October, 1916.
Wolfe, Col. Edwin P.....	Duties of medical supply officers and their methods (collaborated with Col. Henry I. Raymond).	Military Surgeon, January and February, 1917.
Woodbury, Lieut. Col. Frank T.	Recruiting for the military service.	Journal of Immunology, April, 1917.
Woods, Lieut. Alan C., Medical Reserve Corps.	Work on complement fixation with partial antigens.	

Special articles by medical officers of the Army detailed as medicomilitary observers abroad, from the beginning of the European war to and including June 30, 1917.

Officer.	Subject.
Boyer, Maj. P. L.	Report on the French and English hospital service.
Bradley, Lieut. Col. A. E.	Report on some vaccines and sera used by the British.
Do.	British marmite ration for prevention of beriberi.
Do.	Notes on sanitation in the British Army.
Do.	Royal Army Medical College system of lectures—gas masks.
Do.	Heart Hospital at Hampstead, England.
Do.	Report on purification of ablution waste water in the British Army.
Do.	Report on Dartford War Hospital for German prisoners of war in England.
Do.	Report on treatment of cloth by antiseptics in relation to wound infection.
Do.	Report on treatment of burns by ambrine and substitutes.
Do.	The so-called delineation of structures—a delineation of X-ray principles.
Do.	Litters for trench warfare—the "Rogers" stretcher.
Do.	Organization of the British Army medical service.
Do.	Salvage from camp wastes.
Do.	Hospital ships in the British service.
Do.	Water purification at the British front.
Do.	Physical qualifications which determine classification categories in the British soldier.
Do.	"Flavine," the ideal antiseptic.
Do.	Recruit examination and physical requirements.
Do.	Motor surgical operating theater.
Do.	British medical service.
Do.	"Flavine, service type British motor ambulance and theater trailer-surgical, operating."
Do.	Supplementary report on flavine.
Do.	Standard motor ambulance, British service.
Do.	Confidential report on the British medical service.
Church, Maj. J. R.	Incidence of contagious diseases before and during the present war.
Do.	The evacuation of the wounded from the firing line to the rear.
Do.	Report of a visit to temporary hospital No. 21, at Rand Royal, Compeigne, France (Carrel's Hospital).
Do.	Cellophane (sample to be added to his report on Carrel's Hospital).
Do.	Translation of article, "Le Genie Civil," relative to "baths" in the field.
Do.	Translation of article in <i>La Nature</i> on sanitary train in operation in France; also copy of report on "Sanitary train equipped by American donation" and turned over to French Government.
Do.	Notes on the operation of automobiles used in transporting the wounded.
Do.	Movable disinfecting apparatus employed by the French.
Do.	Report on the Ford automobile.
Do.	Report on automobile radiologic units as employed in the French Army.
Do.	Report on trip to Dunquerque and La Panne.
Do.	Plans of French hospital to be erected near Paris for military use.
Do.	Report on discussion of Wright's isotonic and hypertonic salt solutions in the treatment of wounds.
Do.	Report on construction of military hospitals.
Do.	Report on visit to Hospital Complementary V. R. No. 76, at Ris Orangis, Seine et Oise, Dr. Jos. Blake, medical chief.
Do.	Report on incorporation of a disinfectant in cloth to prevent wound infection.
Do.	Volunteer sanitary units with the French Army—French regulations concerning the enrollment of volunteer automobile sanitary units.
Do.	A splint for the transport of fractures of the lower extremity.
Do.	Influenza among the wounded; notes on the French sanitary service from the first line to the evacuation hospital.
Do.	Series of Roentgenograms illustrating various types of fractures and the lodgment of projectiles.
Do.	Destruction of files and disinfectant of corpses in the fighting zone.
Do.	X rays in the sterilization of wounds.
Do.	Plans of a French military hospital.
Do.	Report on working of a French ambulance with some statistics.
Do.	Report on temporary wooden barracks.
Do.	Sanitary cart for battalion use, French Army.
Do.	Report on litter transportation in the French Army.
Do.	Mineral from which asphyxiating gases are said to be made (specimen of mineral).
Do.	Report relative to purchase of telephonic localizers.
Do.	Report on paraffin treatment of burns—method of Dr. Barthe de Sandfort.
Do.	Report on steel helmets in use in the French Army.
Do.	Report on vehicles for dental service in the French Army.
Do.	Report on treatment of wounds according to method of Dr. Menclere.
Do.	Report on dental surgery—American ambulance in France.
Do.	Notes on the organization and operation of the French Red Cross Society.
Do.	Report on the Simpson rays.
Do.	Organization of the French sanitary service and operation of sanitary service in campaign.
Do.	Re motor surgical operating theater.
Church, Maj. J. R., and Lyster, Maj. W. J. L.	Sanitary personnel in the hands of the enemy—difficulties encountered in the application of the rules laid down in the International Red Cross Convention.

Special articles by medical officers of the Army detailed as medicomilitary observers abroad, from the beginning of the European war to and including June 30, 1917—Continued.

Officer.	Subject.
Ford, Maj. J. H.	Medical department of the Austro-Hungarian Army.
Do.	Bacteriological field laboratory of the Austro-Hungarian Army.
Do.	Bath and disinfection trains of the Austro-Hungarian Army.
Do.	Field laundries of the Austro-Hungarian Army.
Do.	Histories to accompany Roentgen photographs.
Ford, Maj. C. S.	Hospital and ambulance trains and railway sanitary supply units of the Austro-Hungarian Army.
Do.	Report of observations in Austria.
Do.	Recent vaccination circulars, French Army.
Do.	Report on motor ambulances and trailers—experiences in French and British services.
Do.	Report on a 600-pound repair wagon for British Red Cross ambulance company.
Do.	Report on treatment of streptococcus septicemia by intravenous injections of peptone.
Do.	Report on Carrel's method and its results in the treatment of wounds of war.
Do.	The principles of the technique of the sterilization of wounds by Alexis Carrel.
Ford, Maj. C. S., and Lyster, Maj. W. J. L.	Report on device for folding seats and facilitating loading of stretchers in ambulances.
Do.	Plans and descriptions of a British ambulance train which they inspected.
Do.	Report on the Royal Army Medical Corps training center and depot at Aldershot.
Do.	Description and plans of a British ambulance train.
Do.	Report on convalescent hospitals and command depots in the British Army.
Do.	Report on shell protective helmets and body shields.
Do.	Report on the use of atropine in diagnosing fevers of the typhoid group.
Do.	Report on a motor surgical operating theater used on the western front.
Do.	Report on motor soup kitchens seen at British western front.
Do.	Report on Marrals's treatment of thrombosis.
Do.	Report on plans of buildings at Donnington Hall detention camp.
Do.	Report on protection against poisonous and lachrymatory gases in the British Army.
Do.	Disinfection of gas masks.
Do.	Political crisis in the Canadian medical department.
Do.	Oral surgery and special hospitals.
Lyster, Maj. W. J. L.	British Red Cross Society organization.
Do.	Personal letter to Maj. Noble in replacing of seats in an ambulance.
Do.	Report on plant for producing typhoid vaccine for the British Army.
Do.	Report on hospital ships in use by the British Army.
Do.	Portions of a Zeppelin blown up in England for deposit in Army Medical Museum.
Do.	"Furley window" for barracks huts and hospitals.
Do.	Report on improved "Furley-fieldhouse" portable barracks hospital.
Do.	Regulations in re admission to Royal Army Medical Corps (British).
Do.	Use of iodine in first-aid dressings.
Do.	Treatment of dysentery.
Do.	Percentage of bed capacity to troops in the field.
Do.	Notes on Italian Army Medical Department.
Do.	Mosquito veil used by British troops at Saloniki.
Do.	German attacks on British hospital ships.
Do.	Soldier's heart.
Do.	System of evacuation of sick and Second Italian Army.
Do.	Plans for hospital ship lift.
Do.	Cleansing appliances in the field.
Do.	The frequency of venereal diseases in the British Army.
Do.	Military pensions and proposed legislation for same in England.
Do.	Typhoid and paratyphoid rates in the British Army.
Do.	Appliances used in the Italian Army.
Wadhams, Maj. S. H.	Mobile sanitary units in the French Army.
Do.	Tour of duty at the front with the French Army.

SANITARY TROOPS—NATIONAL GUARD.

Due to the influence of the European war there has been an unprecedented activity during the past year in both the organization and training of the sanitary units and detachments of the National Guard.

Since the date of the last report, 21 field hospitals and 21 ambulance companies have been organized and extended Federal recognition. In addition 93 sanitary detachments have been organized

for line organizations, making a total of 59 field hospitals, 47 ambulance companies, and 267 sanitary detachments, which were drafted into the Federal service August 5, 1917.

The following table shows the existing sanitary units in the Federal service and the number required for the 16 National Guard divisions:

Division.	States comprising National Guard Divisions.	Organized.	Shortage.
Fifth.....	Maine, none; New Hampshire, 1 F. H.; Vermont, none; Massachusetts, 2 F. H. and 2 A. C.; Connecticut, 1 F. H. and 1 A. C.; Rhode Island, 1 A. C.	4 F. H..... 4 A. C.....	None.
Sixth.....	New York, 4 F. H. and 4 A. C.....	4 F. H..... 4 A. C.....	Do.
Seventh.....	Pennsylvania, 4 F. H. and 4 A. C.....	4 F. H..... 4 A. C.....	Do.
Eighth.....	New Jersey, 1 F. H. and 1 A. C.; Delaware, none; Maryland, 1 F. H. and 1 A. C.; District of Columbia, 1 F. H.; Virginia, 1 F. H. and 1 A. C.	4 F. H..... 3 A. C.....	1 A. C. Delaware.
Ninth.....	North Carolina, 1 F. H. and 1 A. C.; South Carolina, 1 F. H.; Tennessee, 1 F. H. and 1 A. C.	3 F. H..... 2 A. C.....	1 F. H. Tenn., 2 A. C. (1 Tenn., 1 S. Car.).
Tenth.....	Alabama, 1 F. H. and 1 A. C.; Georgia, 1 F. H.; Florida, 1 F. H.	3 F. H..... 1 A. C.....	1 F. H. (Ga.). 3 A. C.
Eleventh.....	Michigan, 1 F. H. and 2 A. C.; Wisconsin, 2 F. H. and 2 A. C.	3 F. H..... 4 A. C.....	1 F. H. (Mich.) None.
Twelfth.....	Illinois, 4 F. H. and 4 A. C.....	4 F. H..... 4 A. C.....	None.
Thirteenth.....	Minnesota, 1 F. H. and 1 A. C.; North Dakota, 1 F. H.; South Dakota, none; Iowa, 2 F. H. and 2 A. C.; Nebraska, 1 F. H.	5 F. H*..... 3 A. C.....	1 A. C. (Nebr.)
Seventeenth.....	Kentucky, 2 F. H. and 1 A. C.; Indiana, 2 F. H. and 3 A. C.	4 F. H..... 4 A. C.....	None.
Eighteenth.....	Arkansas, 1 F. H. and 1 A. C.; Mississippi, 1 F. H.; Louisiana, 1 F. H.	3 F. H..... 1 A. C.....	1 F. H. (Miss.), 3 A. C. (2 Miss., 1 La.).
Nineteenth.....	California, 2 F. H. and 2 A. C.; Utah, 1 F. H.; Arizona, none; Colorado, 1 F. H.; New Mexico, none; Nevada, none.	4 F. H..... 2 A. C.....	2 A. C. (1 Utah, 1 Colo.).
Twentieth.....	Washington, 1 F. H.; Oregon, 1 F. H.; Montana, none; Idaho, 1 F. H.; Wyoming, none.	3 F. H..... No A. C.....	1 F. H. (Wyo.), 4 A. C. (1 Wash., 1 Oreg., 1 Idaho, 1 Wyo.).
	Total.....	59 F. H..... 47 A. C.....	5 F. H. 17 A. C.
	Total units.....	106.....	22

* F. H. in excess in this division.

The commissioned personnel of the medical department, National Guard, on August 5, 1917, whose eligibility under the act of June 3, 1916, was passed upon by this bureau, and were recognized, consisted as follows: 1,407 medical officers, 53 reserve medical officers, 307 dentists, and 81 veterinarians, a total of 1,848 officers. The reserve officers were not drafted into the Federal service, as they were not included in the call of the President. The medical officers of the State staff corps were not included in the call. However, a number of these were drafted later to fill vacancies, and for the divisional staff. The States of Arkansas and Texas had an excess of eligible dental surgeons, who were not drafted into the Federal service. Exclusive of the medical officers of the States staff corps and reserve, there was a deficiency of approximately 60 officers for the National Guard drafted into the Federal service. If the National Guard reserve medical officers and the remainder belonging to the State staff corps are drafted into the Federal service, the medical department of the National Guard will have its full quota required by Tables

of Organization, 1917, for the National Guard drafted into the Federal service.

The enlisted personnel of the medical department had, on August 5, the maximum strength authorized by Tables of Organization, 1917, the approximate strength being 19,000.

A considerable number of medical officers, whose efficiency records on the Texas border were reported as excellent, severed their connection with the National Guard; some for personal reasons, others to accept commissions in the Officers Reserve Corps of the Army, which gave them better opportunity for advancement. Consequently, about 50 per cent of the present commissioned personnel have had no prior military service.

INSTRUCTION AND TRAINING.

The few officers and noncommissioned officers of the Regular Medical Corps, assigned to duty with the medical department of the National Guard, were used for various duties, so that very little instruction was given the sanitary troops by the Regular Establishment. A uniform and progressive course of armory instruction was prescribed for the sanitary units and detachments, which was for the most part conscientiously followed by the responsible National Guard medical officers. Schools for officers and noncommissioned officers were established and a special course of instruction was prescribed. The medical officers correspondence course had to be abandoned for lack of inspector-instructors to supervise it.

EXAMINATIONS UNDER THE ACT OF JUNE 3, 1916.

Due to the nonavailability of regular medical officers to supervise and act as members of boards, this bureau was unable to convene boards of medical officers to examine persons appointed and promoted in the medical department, National Guard, as required under the act of June 3, 1916. One board was convened for this purpose in the State of Connecticut, where there was a retired medical officer on duty. Upon recommendation of this bureau, these examinations were turned over to department commanders. They, however, were only able to determine the qualifications of a few applicants for appointment and promotion in the medical department. The eligibility of all appointments was passed upon by this bureau, and appointments authorized, subject to future examinations, which has resulted in securing a high grade of medical officers.

EQUIPMENT.

The supply departments have been unable to furnish full equipment or supplies to the National Guard since January 1, 1917, so that 19 newly organized field hospitals and 22 ambulance companies were not equipped August 5, 1917. Forty field hospitals and 25 ambulance companies were supposed to be fully equipped, and had animal-drawn transportation, but not the animals.

Tables of Organization, 1917, require that half of the units of the sanitary train have motor-drawn transportation. From funds appropriated this bureau, the Surgeon General's Office placed con-

tracts for 265 motor ambulances and 105 motorcycles to equip 23 field hospitals and 23 ambulance companies with motor equipment. The total cost of this equipment, some of which has been delivered, amounted to \$488,300. The furnishing of motor trucks and cars for these units pertains to the Quartermaster Corps. They were unable to furnish this equipment prior to the draft of the National Guard.

Early in 1917, \$94,500 was allotted to the Ordnance Department from funds appropriated this bureau for furnishing 1,200 officers' belts (par. 864, M. M. D.), and 6,600 enlisted men's belts (par. 865, M. M. D.), including the necessary pouches and tags, and ration bags. These articles were intended for equipping the commissioned and enlisted personnel, medical department, National Guard, to replace old and obsolete equipment, and delivery was to be made in July, 1917. None were issued to the National Guard prior to the draft.

Indiana Ambulance Company No. 3, Michigan Ambulance Company No. 2, and Wisconsin Ambulance Company No. 1, were furnished complete standard motor equipment by private persons, approved by the War Department.

MEDICAL DEPARTMENT TRAINING CAMP.

With a view to providing an adequate number of trained medical officers of the National Guard who could take up the work of training and instructing the sanitary personnel and line troops at concentration camps, which could not be furnished by the Regular establishment, 257 medical officers and 762 enlisted men of the National Guard from among those not in the Federal service, and who were not on the border, were called into the Federal Service in June, and sent to the medical department training camps at Fort Oglethorpe, Ga., Fort Riley, Kans., and Fort Benjamin Harrison, Ind., for a three months course of intensive training. In addition, one field hospital and one ambulance company, National Guard, were requested to be sent to each of these camps for the purpose of aiding in giving instruction to the student officers and enlisted men in attendance, none from the Regular establishment being available for this purpose. Those selected were Field Hospital No. 1 and Ambulance Company No. 1, Tennessee, to Fort Oglethorpe, Ga.; Field Hospital No. 1 and Ambulance Company No. 1, Indiana, to Fort Benjamin Harrison, Ind.; and Field Hospital No. 1 and Ambulance Company No. 1, Missouri, to Fort Riley, Kans. Four medical officers, National Guard, were requested called into Federal service, for the purpose of instructors at medical department training camps.

MEDICAL EXAMINATIONS.

Prior to the act of June 3, 1916, the War Department had no mandatory authority concerning the physical requirements of the personnel of the Organized Militia not in Federal service, although all but four States claimed to have adopted the standard of physical examination prescribed for the Regular Army. These requirements were not rigidly enforced by the States, as evidenced by the large number found physically disqualified upon muster into the Federal service, under the calls of May 9 and June 18, 1916. The mobilization report, Organized Militia, 1916, shows that from data available

there were 23,721 rejections out of a total of 128,517 persons examined, making an average of 18.45 per cent rejected on account of physical defects.

It might be interesting to compare the above with the mobilization of the National Guard in 1917. From the data available representing 39 States, there were 11,762 rejections out of 121,721 examined, making an average of 9.9 per cent rejected on account of physical disabilities.

CAUSES OF REJECTION.

The following is a tabulation of the causes of rejection on account of physical disabilities:

Cause.	1916— 5 States, 35,824 troops examined.	1917— 39 States, 121,721 troops examined.
Veneral diseases.....	287	1,026
Poor physique, under height and weight.....	1,731	1,932
Defective vision and diseases of the eyes.....	741	1,503
Deformity of feet and flatfoot.....	414	1,359
Amputations and deformities.....	195	612
Golfer.....	57	67
Defective mentality.....	40	135
Diseases of the nose and throat.....	24	106
Veins, arteries, and varicosities.....	80	158
Hydrocele and varicocele.....	89	308
Hernia.....	396	1,032
Defective dentition.....	249	629
Defective hearing.....	96	401
Overweight and obesity.....	65	35
Nervous diseases.....	19	113
Hemorrhoids.....	43	144
Heart and lungs.....	724	1,291
Illiteracy.....	49	10
Skin diseases.....	26	7
Alcoholism and drug habits.....	12	62
Unclassified.....	189	820
Total.....	5,526	11,762

CONSTRUCTION AND REPAIR OF HOSPITALS.

During the past year plans and specifications were prepared for enlarging and improving the hospital buildings at various military posts and general hospitals.

Letterman General Hospital, San Francisco, Cal.—Contracts were entered into for additional concrete wards, and a second story on the bacteriological laboratory. A new concrete ward, an addition to the nurses' dormitory, and an addition to the department laboratory were completed for this general hospital.

Fort Bliss, Tex.—A rear annex containing kitchen and mess room, and dormitories for the Hospital Corps was completed, and the base hospital at this post, used in caring for the sick from the Mexican border, was enlarged and improved.

Fort Sam Houston, Tex.—The building to house a central heating plant, a department laboratory, dormitories for the Hospital Corps, and a surgical pavilion were completed so far as contracted for. A new kitchen addition was added to the hospital, and the mess room was enlarged. The porches were screened, and various improve-

ments were added for the purpose of placing this hospital in the most sanitary condition.

Temporary buildings for hospital purposes were also provided from the appropriation for construction and repair of hospitals at numerous places along the Mexican border for the care of the sick, and \$500,000 was used for these temporary structures.

An allotment of \$50,000 was made from the appropriation for construction and repair of hospitals for use in the Philippine Department, and \$1,000 was allotted from the appropriation for quarters for hospital stewards, for quarters for noncommissioned officers in the Philippine Islands.

In addition to the foregoing, all general hospitals in connection with the Army and the hospitals at military posts were improved or kept in proper repair so far as funds would permit. Temporary hospitals for standing camps and cantonments were also provided in a number of cases.

The porches of the Army and Navy general hospital have been inclosed with glazed sash, thus materially increasing the bed capacity, and no additional new construction is thought to be necessary at present.

General Hospital, Fort Bayard, N. Mex.—Funds to build an officers' infirmary for this general hospital, \$60,000, have been authorized by Congress, and the following additional buildings are necessary: One infirmary for enlisted men, estimated to cost \$100,000; one addition for the officers' dormitory, estimated to cost \$80,000; one new ward, estimated to cost \$75,000; one ward for ambulant patients, estimated to cost \$60,000; also one amusement hall and library, estimated to cost \$30,000; and funds for these buildings have been included in the annual estimate for the fiscal year 1918.

Letterman General Hospital, San Francisco, Cal.—The wards of this general hospital, with the exception of a few which have been replaced with reinforced concrete buildings, are constructed of wood, have been in use for quite a number of years, and are dangerous in case of fire. These wooden wards are being replaced gradually from time to time with concrete buildings, and \$75,000 is included in the annual estimate for 1919, to be used for this purpose.

Walter Reed General Hospital, Takoma Park, D. C.—This is one of the most important general hospitals and is used for the treatment of officers, retired officers, patients from Washington Barracks, enlisted men, special cases, observation of patients under consideration for discharge on account of disability, and for the education of students attending the Army Medical School. Funds are included in the appropriation made for the current fiscal year, \$90,000, to place additional stories on Wards A and B. When these improvements are added, much needed room will be secured, but further expansion will be necessary in the near future. An item of \$350,000 is included in the annual estimate for 1919, to build an Army medical school on this reservation, thus placing the hospital and the school in close proximity and saving a large sum annually paid for a rented building.

New modern hospitals are required for several military posts to replace dilapidated wooden structures. A new hospital is needed for Fort Michie, N. Y., and \$40,000 is included in the estimate for

1919 to be used for this purpose. A new hospital is also needed for Fort Dade, Fla., and \$45,000 is included in the estimate for 1919, to cover the cost of the same. In addition, an item of \$40,000 is included in the estimate for 1919 to provide an isolation ward, a prison ward, and a morgue for the hospital at Fort Mills in the Philippine Islands.

Owing to the necessity for hospitals to care for sick and wounded occasioned by the present war with Germany, large sums will be required, and the annual estimate for the fiscal year 1919 calls for \$25,000,000 which, under ordinary circumstances, would be a large sum, but these funds are not only for general hospitals and hospitals at military posts, but they are also to provide for the alteration of permanent buildings at posts for use as hospitals, construction and repair of temporary hospital buildings at permanent posts, construction and repair of temporary general hospitals, rental of grounds and rental and alteration of buildings for use for hospital purposes in the District of Columbia and elsewhere, including necessary temporary quarters for hospital personnel, outbuildings, heating and laundry apparatus, plumbing, water and sewers, and roads and walks for the same.

Quarters for noncommissioned officers of the Medical Department.—Owing to the limited appropriation for these buildings, it was not possible to erect additional quarters, and various necessary additions and improvements had to be disallowed. A number of large military posts are in need of such quarters for these noncommissioned officers and the appropriation should be liberal until such time as suitable habitations are supplied.

MEDICAL AND HOSPITAL SUPPLIES.

FINANCES.

The appropriation made by Congress for the fiscal year 1917 was \$4,500,000.

From the time war was declared until the 1st of July (two and a half months) the supply division had compiled estimates of the requirements of 1,000,000 men for one year and had actually placed contracts for \$11,712,000 worth of medical supplies, under the urgent deficiency act, approved June 15, the deliveries called for being such as to insure an adequate amount being on hand when the National Army camps were opened.

PURCHASE AND DISTRIBUTION OF MEDICAL SUPPLIES.

In order to assure the prompt furnishing of medical supplies for an Army in the field, three important duties devolve upon the supply division of the Medical Department, as follows:

Procurement of the supplies in sufficient time to deliver them to the distributing points before they are required. The needs for six months in advance must be anticipated. Large purchases must be made and a reserve supply be on hand for emergencies. Twelve months' supply should be in sight.

Transportation of these supplies to suitable distributing points for issue to the troops. This was materially facilitated on the border

by the cooperation of the Quartermaster Corps and the railroads. Cars were tagged with distinctive labels or cards, indicating their character and that they were Government stores.

Distributing points must be easy of access. The supplies must be issued with the least possible delay. The number of offices through which requisitions pass must be reduced to the minimum compatible with the conservation of the supplies. This was accomplished in the Southern Department by authorizing the officer in charge of the depot to make issues without reference to higher authority.

To facilitate the purchase of the large quantities of medical supplies necessary for the war, the medical supply depots at New York City, N. Y., Washington, D. C., and St. Louis, Mo., have been greatly expanded. New buildings have been leased, and arrangements are being made with the railroad companies to run spur tracks direct to these depots. During the war all post supplies will be purchased at New York, field supplies at Washington, and veterinary supplies at St. Louis.

To facilitate the distribution of these supplies, four new subsidiary depots have been established. The supplies will be transferred in bulk from the purchasing depots to the subsidiary depots, whence they will be issued on approved requisitions to all military posts and camps. The new issuing depots are located at Philadelphia, Pa., Atlanta, Ga., Chicago, Ill., and France.

The supply depots formerly established at San Antonio, Tex., San Francisco, Cal., Honolulu, Hawaii, and Manila, P. I., will continue their functions as issuing depots. The medical supply depot at El Paso, Tex., has been abandoned, and all supplies formerly issued from that depot will be issued by the San Antonio depot.

In addition to the above, a motor-ambulance supply depot has been established at Louisville, Ky. All motor ambulances will be assembled at and distributed from this depot. A standard type of motor ambulance has been adopted by the ambulance board. The standard body can be readily adapted to fit any chassis.

MEDICAL SUPPLIES FOR MEXICAN BORDER.

The medical supply depots in the Southern Department formerly established at San Antonio and El Paso, Tex., to supply the troops along the border and in Mexico, brought this work to a successful conclusion. The inspector general reported that the medical supplies had been promptly furnished, and in sufficient quantities.

DECENTRALIZATION.

On account of the war, department surgeons and division surgeons have been authorized to call upon the medical supply officers in their vicinity to issue standard medical supplies, without reference to the Surgeon-General's Office.

CANTONMENT UNITS.

In order to avoid possible confusion and delay in the equipment of cantonment hospitals, the large purchasing depots were furnished with a list of supplies known as a cantonment unit, with instruction

to assemble a sufficient number for the camps in their vicinity. As soon as the cantonment hospitals are completed instructions will be given to ship these units to them. They will be used as a nucleus for base hospitals, additional supplies being furnished on requisition from time to time as needed.

MEDICAL SUPPLY DEPOTS AT CAMPS.

A medical supply depot is also being established at each of these camps. It will be stocked with expendable articles for routine issues to camp infirmaries. Standard medical supplies will therefore be available at every camp.

VACCINES.

Typhoid and paratyphoid vaccines have been forwarded in bulk from the Army Medical School, Washington, D. C., to the various medical supply depots, including those located at the cantonments, whence they are issued direct to post surgeons and camp surgeons.

Arrangements have been made through the biological committee of the Council of National Defense to have an ample supply of small-pox vaccine available in the vicinity of each camp, to be promptly furnished to the camps upon request of the medical supply officers.

BLANK FORMS.

Blank forms have also been placed in all the supply depots, to be immediately available for distribution as needed.

ASSISTANCE RENDERED BY COMMITTEES OF COUNCIL OF NATIONAL DEFENSE.

The various committees of the medical section, Council of National Defense, have materially assisted the Medical Department in effecting the purchase of enormous quantities of supplies. In this connection particular mention should be made of the activities of the surgical instruments committee.

SURGICAL INSTRUMENTS.

Eighty per cent of the surgical instruments in this country were formerly made in Germany. As a result of the activities of this committee, arrangements have been made to supply the Army and Navy and contracts let for the necessary instruments. This has been accomplished only after the most strenuous endeavor and the utilization of all resources in this country.

X-RAY APPARATUS.

The officer in charge of this work has been a member of the sub-committee of the Council of National Defense, which has charge of the standardization of apparatus, and has also acted in an advisory capacity to the supply division of the American Red Cross. This has made it possible to compile a standard list of X-ray apparatus,

which has been adopted by the Council of National Defense and adhered to in all essentials by the supply division of the Surgeon-General's Office and by the Red Cross. This standard list includes both stationary and portable apparatus.

The machines of those manufacturers whose apparatus has met the specifications are set up and in operation at Cornell Medical College, in New York City, where a school has been established for instruction in military roentgenology. Branch schools have also been established in eight other cities for instruction in this work.

By cooperation with a committee of the American Roentgen Ray Society, methods of localization of foreign bodies have been standardized and instrument manufacturers are now making up the various standard instruments for this work.

Manufacturers of X-ray apparatus have cooperated with this department so thoroughly that there will probably be no difficulty in securing all of the apparatus needed throughout the duration of the war at a fair price to the Government.

ARTIFICIAL LIMBS AND APPARATUS.

Under the laws relating to artificial limbs and apparatus, or commutation therefor, orders on manufacturers were given during the fiscal year for 20 artificial legs and 1 arm. Commutation certificates were issued for 126 cases of amputated leg, 55 of amputated foot, and 901 cases of loss of use of limb.

Under the act of June 17, 1870, and subsequent amendments thereto, 23,741 disabled soldiers and sailors have been furnished artificial limbs and apparatus, or have received commutation in money, since the passage of the act, as follows:

Total number benefited to June 30, 1917.....	23, 741
Died.....	16, 604
Dropped from rolls.....	592
Rejected after one or more payments.....	572
Remaining on the rolls at the end of the fiscal year.....	5, 973
Loss of beneficiaries during the year.....	513

APPLIANCES AND TRUSSES.

Eighty-one appliances were issued during the fiscal year ending June 30, 1917, and 153 trusses for disabled soldiers were furnished and fitted.

ARMY MEDICAL MUSEUM.

The total number of specimens in the museum at the close of the fiscal year June 30, 1917, is 47,681.

The following statement shows in detail the additions and changes in the different sections:

Pathological section:	
In museum June 30, 1916.....	13,089
Discarded.....	2
Received during the year.....	13,087
	55
In museum June 30, 1917.....	13,142
Anatomical section:	
In museum June 30, 1916.....	1,251
Discarded.....	2
Donated.....	1
	3
Received during the year.....	1,248
	40
In museum June 30, 1917.....	1,288
Comparative anatomy section:	
In museum June 30, 1916.....	601
Received during the year.....	1
In museum June 30, 1917.....	602
Microscopical section:	
In museum June 30, 1916, and June 30, 1917.....	12,916
Miscellaneous section:	
In museum June 30, 1916.....	4,014
Discarded.....	1
	4,013
Received during the year.....	205
In museum June 30, 1917.....	4,218
Provisional anatomy section:	
In museum June 30, 1916, and June 30, 1917.....	293
Photographic section, including negatives:	
In museum June 30, 1916.....	16,149
Photographs received during the year.....	73
In museum June 30, 1917.....	15,222

RECAPITULATION.

In museum June 30, 1916.....	47,313
Discarded and donated.....	6
	47,307
Received during the year.....	374
In museum June 30, 1917.....	47,681

The following are some of the more interesting specimens received during the year ending June 30, 1917:

Malformations.—Specimen 14672, human fetus at 7½ months, showing craniorachischisis; contributed by Dr. H. C. Macatee Washington D. C. Specimen 14652, atresia ani; infant died tenth day; apparent cause, prenatal adhesions; contributed by Dr. J. R. Wellington, Washington, D. C.

Interstitial pregnancy.—Specimens 14647–14648, uterus, appendages and fetus; removed and contributed by Dr. I. S. Stone, Washington, D. C.

Shot fractures of jaws.—Specimens 14661–14671, series of plaster casts from European War of 1914–1917, showing results of dental operative work; made and contributed by Dr. William C. Speakman, Wilmington, Del.

Fibrosarcoma of clavicle.—Specimen 14650, removed by operation from soldier, age 23; contributed by Lieut. Col. H. A. Webber, Medical Corps, United States Army.

Brain.—Specimen 14631, endothelioma of left middle frontal gyrus; soldier, age 32; contributed by Capt. G. I. Jones, Medical Corps, United States Army. Specimen 14657, softening and hemorrhage; from an Army officer; contributed by Maj. P. M. Ashburn, Medical Corps, United States Army. Specimen 14683, leptomeningitis; no history; contributor unknown.

Spinal cord.—Specimen 14675, tumor; contributed by First Lieut. H. G. Maul, Medical Corps, United States Army.

Eye.—Specimen 14673, melanotic sarcoma; from girl 3 years old; removed and contributed by Dr. D. K. Shute, Washington, D. C.

Nose.—Specimen 14645, screw worms removed from nose of soldier who had ozena; 152 worms; contributed by Maj. G. E. Yount, First Arizona Infantry.

Circulation.—Specimen 14630, aneurism of arch of aorta, rupture into left pleural sac; soldier, age 44; contributed by Capt. H. J. Nichols, Medical Corps, United States Army. Specimen 14655, Hodgkin's disease; tumor of lymph nodes in mediastinum; left lung also involved; from a Philippine Scout, age 26, who died of lobular pneumonia; contributed by Lieut. H. G. Maul, Medical Corps, United States Army. Specimen 14681, lymphosarcoma of lymph nodes of neck and superior mediastinum; from soldier, age 28; contributed by Lieut. J. S. Gaul, Medical Corps, United States Army.

Lung.—Specimen 14679, sarcoma, secondary to sarcoma of leg which was amputated; retired soldier, age 78; contributed by Capt. A. D. Tuttle, Medical Corps, United States Army. (See also 14680, kidney.)

Esophagus.—Specimen 1453, carcinoma of pharyngeal end; retired soldier, age 82; contributed by Capt. A. D. Tuttle, Medical Corps, United States Army.

Stomach.—Specimen 14656, solitary ulcer; death from hemorrhage; retired soldier, age 84; contributed by Capt. A. D. Tuttle, Medical Corps, United States Army.

Small intestine.—Specimen 14636, sarcoma; soldier, age 26, contributed by Lieut. F. H. Petters, Medical Corps, United States Army. Two specimens of paratyphoid A, ulcer, 14651, from soldier, age 39; contributed by Capt. G. F. Lull, Medical Corps, United States Army;

the other, 14654, from a soldier, age 27; one ulcer had perforated; contributed by Capt. H. H. Johnson, Medical Corps, United States Army.

Liver.—Specimen 14660, necrobacillosus; from a cow that suddenly died; contributed by Dr. C. B. Robinson, veterinary surgeon, Washington, D. C. Specimen 14640, multiple abscesses of liver; from Army officer, age 40, who had had malaria; died of septicemia; contributed by Lieut. F. H. Petters, Medical Corps, United States Army.

Kidney.—Specimen 14676, prosphatic calculi removed from pelvis of ureter; soldier; contributed by Lieut. H. G. Maul, Medical Corps, United States Army. Specimen 14680, cyst of kidney; same case as 14679, sarcoma of lung; retired soldier, age 78; contributed by Capt. A. D. Tuttle, Medical Corps, United States Army.

Urinary bladder.—Specimen 14643, carcinoma; retired soldier, age 76; contributed by Lieut. B. L. Wilson, Medical Reserve Corps, United States Army.

Testicle.—Specimen 14641, primary carcinoma; secondary foci in lung (see 14642); civilian, age 30; contributed by Capt. A. D. Tuttle, Medical Corps, United States Army. Specimen 14678, tuberculosis of testicle; removed and contributed by Lieut. F. H. Petters, Medical Corps, United States Army.

Mammary gland.—Specimen 14634, large cysts of female mammary gland; contributed by Dr. E. C. Folkmar, Washington, D. C.

Miscellaneous section.—Specimen 4192, plaster cast of hand of President Lincoln. Specimen 4195, plaster cast of hand of Keller, the prestidigitateur. Specimen 4194, model of central nervous system, devised by Prof. Gaylord P. Clark. Specimen 4210–4211, plaster cast of the "Piltdown" skull. Specimen 4221, German gas mask; contributed by Lieut. E. F. Riggs, United States Army. Specimens 4222–4224, French gas mask and appurtenances; contributed by Lieut. Col. Spencer Cosby, United States Army. Specimens 4242 and 4267, British gas masks, contributed by Col. A. E. Bradley, United States Army. Specimen 4217, fragments of a Zeppelin that was blown up; contributed by Maj. W. J. L. Lyster, Medical Corps, United States Army. Specimen 4239, British helmet perforated by missile; contributed by Maj. Lyster. Specimen 4240, British helmet perforated by rifle bullet; contributed by Col. A. E. Bradley, United States Army. Specimen 4268, British trench litter; contributed by Association of United States Military Surgeons. Specimens 4275 to 4387, series of medals, purchased.

Photographs.—Specimens 4094 to 4118, series of photographs of shot injury of face, from European war 1914–1917, contributed by Dr. William C. Speakman, Wilmington, Del.

TABLE NO. 47.—*Dental oral diseases, year 1916, officers and enlisted men.*

	Cases admitted to treatment.		Operations performed.	
	Number.	Ratio.	Number.	Ratio.
United States (Continental) exclusive of Alaska.....	90,806	1,408.59	118,330	1,835.54
Philippine Department.....	18,266	1,024.86	20,039	1,124.33
Hawaiian Department.....	13,220	1,504.15	15,921	1,811.47
Canal Zone, Panama.....	6,602	940.13	9,265	1,317.81
China.....	1,843	1,346.24	1,742	1,272.46
Mexico.....	10,845	1,209.89	11,735	1,406.57
Porto Rico.....	493	497.48	823	830.47
Total.....	142,075	1,286.28	177,845	1,610.13

DENTAL CARIES—NUMBER OF TEETH TREATED.

	White troops.		Colored troops.		Porto Ricans.		Philippine Scouts.		Total.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
United States (Continental), excluding Alaska.....	55,697	875.23	731	881.79					56,428	875.31
Mexico.....	3,814	590.04	928	493.88					4,742	568.38
Philippine Department.....	7,472	661.30	174	184.13			1,644	204.68	9,290	521.24
Hawaiian Department.....	7,147	1,023.78	1,314	726.77					8,461	962.08
Canal Zone, Panama.....	3,357	478.00							3,357	478.00
China.....	1,076	785.98							1,076	785.98
Porto Rico.....					258	270.16			258	270.16
Total.....	78,563	798.74	3,147	566.91	258	270.16	1,644	204.68	83,612	757.04

FINANCIAL STATEMENT, 1917.¹

Medical and hospital department, 1917-18, act June 15, 1917.

Appropriated by act approved June 15, 1917.....	\$29,780,000.00
Disbursed during the year:	
Medical and hospital supplies.....	\$304,937.03
Balances on hand June 30, 1917:	
In United States Treasury.....	28,480,000.00
In hands of disbursing officers.....	995,062.97
Total accounted for.....	29,780,000.00

Medical and hospital department, 1917.

Appropriated by act approved Aug. 29, 1916.....	4,500,000.00
Refundments during the year.....	1,435.56
Total to be accounted for.....	4,501,435.56

Disbursed during the year:		
Expenses of medical supply depots.....	\$1,363.82	
Medical and hospital supplies.....	2,942,551.92	
Medical attendance and medicines (except at recruiting stations).....	47,036.86	
Medical expenses of recruiting (including medical attendance and medicines at recruiting stations).....	18,048.75	
Pay of employees.....	323,418.64	
Hospital laundry.....	110,922.58	
Expressage.....	21,331.82	
Gas and electricity for laboratory apparatus.....	2,320.11	
Customs duties and internal-revenue taxes on medical supplies.....	154.96	
Miscellaneous.....	253.20	
		3,467,402.66
Treasury transfers to "Medical and hospital department, 1916," to correct erroneous payments therefrom.....		334.13
Transferred by Secretary of War to administrative control of Quartermaster General.....		310,000.00
Balances on hand June 30, 1917:		
In United States Treasury.....	\$562,798.02	
In transit from disbursing officers to the Treasury.....	2,271.26	
In hands of disbursing officers.....	158,629.49	
		723,698.77
Total accounted for.....		4,501,435.56

Medical and hospital department, 1916-17.

Appropriated by act approved July 1, 1916.....	1,584,000.00
Disbursed during the year:	
Medical and hospital supplies.....	1,124,084.26
Medical attendance and medicines (except at recruiting stations).....	172.60
Pay of employees.....	87.50
Hospital laundry.....	29.66
	1,124,374.02

¹ The disbursements in this statement include settlements with public creditors made by the accounting officers of the Treasury and charged to these appropriations.

Balances on hand June 30, 1917:

In United States Treasury	\$399, 750. 96	
In hands of disbursing officers.....	59, 875. 02	
		<u>\$459, 625. 98</u>

Total accounted for..... 1, 584, 000. 00

Medical and hospital department, 1916.

Balance on hand July 1, 1916.....	138, 910. 88	
Refundments to appropriation.....	334. 13	
Erroneous Treasury transfer to appropriation.....	301. 62	
		<u>139, 546. 63</u>

Disbursed during the year:

Expenses of medical supply depots.....	\$270. 76	
Medical and hospital supplies.....	113, 214. 43	
Medical attendance and medicines (except at recruiting stations).....	4, 516. 18	
Medical expenses of recruiting (including medical attendance and medicines at recruiting stations).....	1, 107. 95	
Pay of employees.....	2, 564. 51	
Hospital laundry.....	7, 833. 73	
Expressage.....	94. 18	
Gas and electricity for laboratory apparatus.....	410. 22	
Miscellaneous.....	20. 00	
		<u>130, 031. 96</u>

Treasury transfers to other appropriations to correct erroneous charges thereto..... 449. 99

Balances on hand June 30, 1917:

In United States Treasury.....	\$6, 293. 68	
In hands of disbursing officers.....	2, 771. 00	
		<u>9, 064. 68</u>

Total accounted for..... 139, 546. 63

Medical and hospital department, 1915.

Balance on hand July 1, 1916.....	6, 765. 40	
Treasury transfer to correct erroneous deposit.....	11. 07	

Total to be accounted for..... 6, 776. 47

Disbursed during the year:

Medical and hospital supplies.....	\$371. 45	
Medical attendance and medicines (except at recruiting stations).....	30. 50	
Expressage.....	. 39	
		<u>402. 34</u>

Carried to surplus fund..... 6, 374. 13

Total accounted for..... 6, 776. 47

Medical and hospital department, certified claims.

Appropriated by act approved Apr. 17, 1917.....	3. 58	
Disbursed during the year.....	3. 58	

Replacing medical supplies, 1917-18.

[Act June 12, 1906, 34 Stats., 256.]

Amounts accruing to this fund during the year:

On account of supplies transferred to other branches of the Government.....	34, 372. 27	
On account of supplies sold.....	38, 330. 98	
On account of collections for medical supplies lost or destroyed ..	438. 42	

Total to be accounted for..... 73, 141. 67

Balance in United States Treasury June 30, 1917..... 73, 141. 67

Replacing medical supplies, 1916-17.

Balance on hand July 1, 1916.....	\$97,406.30
Amounts accruing to this fund during the year:	
On account of supplies transferred to other branches of the Government.....	9,291.75
On account of supplies sold.....	2,718.71
On account of collections for medical supplies lost or destroyed..	240.70
On account of refundment to appropriation.....	559.56
Total to be accounted for.....	110,217.02
Disbursed during the year for medical and hospital supplies.....	100,931.22
Balances on hand June 30, 1917:	
In United States Treasury.....	\$8,949.95
In hands of disbursing officer.....	335.85
	9,285.80
Total accounted for.....	110,217.02

Replacing medical supplies, 1915-16.

Balance on hand July 1, 1916.....	99,413.73
Amount accrued to this fund during the year on account of supplies transferred to other branches of the Government.....	746.58
Total to be accounted for.....	100,160.31
Disbursed during the year for medical and hospital supplies.....	99,516.45
Balances on hand June 30, 1917:	
In United States Treasury.....	\$159.93
In hands of disbursing officer.....	483.93
	643.86
Total accounted for.....	100,160.31

Replacing medical supplies, 1914-15.

Balance on hand July 1, 1916.....	8,143.01
Disbursed during the year for medical and hospital supplies.....	8,059.80
Carried to surplus fund.....	83.21
Total accounted for.....	8,143.01

Hospital care, Canal Zone garrisons, 1917.

Appropriated by act approved Aug. 29, 1916.....	45,000.00
Disbursed during the year.....	37,521.60
Balances on hand June 30, 1917:	
In United States Treasury.....	\$3,000.00
In hands of disbursing officer.....	4,478.40
	7,478.40
Total accounted for.....	45,000.00

Hospital care, Canal Zone garrisons, 1916.

Balance on hand July 1, 1916.....	17,290.82
Disbursed during the year.....	5,490.25
Balance in United States Treasury June 30, 1917.....	11,800.57
Total accounted for.....	17,290.82

Hospital care, Canal Zone garrisons, 1915.

Balance on hand July 1, 1916.....	\$13, 837. 68
Disbursed during the year.....	39. 50
Carried to surplus fund.....	13, 798. 18
Total accounted for.....	13, 837. 68

Library, Surgeon General's Office, 1917.

Appropriated by act approved Aug. 29, 1916.....	10, 000. 00
Disbursed during the year.....	2, 613. 81
Balances on hand June 30, 1917:	
In United States Treasury.....	\$6, 556. 75
In hands of disbursing officer.....	829. 44
	7, 386. 19
Total accounted for.....	10, 000. 00

Library, Surgeon General's office, 1916.

Balance on hand July 1, 1916.....	7, 773. 65
Refundment to appropriation.....	10. 74
Total to be accounted for.....	7, 784. 39
Disbursed during the year.....	3, 004. 84
Balances on hand June 30, 1917:	
In United States Treasury.....	\$772. 36
In hands of disbursing officer.....	4, 007. 19
	4, 779. 55
Total accounted for.....	7, 784. 39

Library, Surgeon General's office, 1915.

Balance on hand July 1, 1916.....	2, 415. 53
Disbursements.....	316. 90
Carried to surplus fund.....	2, 098. 63
Total accounted for.....	2, 415. 53

Army Medical Museum, 1917.

Appropriated by act approved Aug. 29, 1916.....	5, 000. 00
Disbursed during the year.....	1, 398. 48
Balances on hand June 30, 1917:	
In United States Treasury.....	\$2, 100. 00
In hands of disbursing officer.....	1, 501. 52
	3, 601. 52
Total accounted for.....	5, 000. 00

Army Medical Museum, 1916.

Balance on hand July 1, 1916.....	2, 223. 90
Disbursed during the year.....	1, 725. 22
Balances on hand June 30, 1917:	
In United States Treasury.....	\$300. 00
In hands of disbursing officer.....	198. 68
	498. 68
Total accounted for.....	2, 223. 90

Army Medical Museum, 1915.

Balance on hand July 1, 1916.....	\$2,460.77
Carried to surplus fund.....	2,460.77

Artificial limbs, 1917.

Appropriated by act approved July 1, 1916.....	65,000.00
Disbursed during the year.....	57,039.26
Balances on hand June 30, 1917:	
In United States Treasury.....	\$5,850.00
In hands of disbursing officer.....	2,110.74
	7,960.74
Total accounted for.....	65,000.00

Artificial limbs, 1916.

Balance on hand July 1, 1916.....	15,325.26
Disbursed during the year.....	1,978.55
Balance in United States Treasury June 30, 1917.....	13,346.71
Total accounted for.....	15,325.26

Artificial limbs, 1915.

Balance on hand July 1, 1916.....	45,686.42
Disbursed during the year.....	69.86
Carried to surplus fund.....	45,616.56
Total accounted for.....	45,686.42

Trusses for disabled soldiers, 1917.

Appropriated by act approved July 1, 1916.....	2,500.00
Disbursed during the year.....	1,038.09
Balances on hand June 30, 1917:	
In United States Treasury.....	\$1,300.00
In hands of disbursing officer.....	161.91
	1,461.91
Total accounted for.....	2,500.00

Trusses for disabled soldiers, 1916.

Balance on hand July 1, 1916.....	1,559.04
Disbursed during the year.....	95.17
Balance in United States Treasury June 30, 1917.....	1,463.87
Total accounted for.....	1,559.04

Trusses for disabled soldiers, 1915.

Balance on hand July 1, 1916.....	1,708.67
Carried to surplus fund.....	1,708.67

Appliances for disabled soldiers, 1917.

Appropriated by act approved July 1, 1916.....	\$1,000.00
Disbursed during the year.....	474.35
Balances on hand June 30, 1917:	
In United States Treasury.....	\$300.00
In hands of disbursing officer.....	225.65
	525.65
Total accounted for.....	1,000.00

Appliances for disabled soldiers, 1916.

Balance on hand July 1, 1916.....	697.76
Disbursed during the year.....	66.15
Balance in United States Treasury June 30, 1917.....	631.61
Total accounted for.....	697.76

Appliances for disabled soldiers, 1915.

Balance on hand July 1, 1916.....	690.85
Carried to surplus fund.....	690.85

Civilian military training camps, 1916-17.

Amount allotted by The Adjutant General Dec. 20, 1916.....	5,892.00
Balance in United States Treasury June 30, 1917.....	5,892.00

General summary of all appropriations.

Balances on hand July 1, 1916.....	462,309.67
Appropriated.....	35,998,395.58
Accrued to replacing funds, act June 12, 1906 (34 Stats., 256).....	86,139.41
Refundments during the year.....	1,868.56
Transfers between appropriations, debits.....	784.12
Total to be accounted for.....	36,549,497.34
Disbursed during the year.....	5,348,531.09
Transfers between appropriations, credits.....	784.12
Transfer to administrative control of Quartermaster General.....	310,000.00
Carried to surplus fund.....	72,831.00
Balances on hand June 30, 1917.....	30,817,351.13
Total accounted for.....	36,549,497.34

VITAL STATISTICS INDEX.

[See p. 464.]

TABLE No. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916.*

Operation.	Disease or injury	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	Narc.
EYE.												
Iridectomy.....	Leukoma.....	1	1								1	
Incision and drainage.....	Retrolbulbar abscess.....	1	1					1				
Removal of lens..... 1												
Extraction, Indian..... 1	Cataract.....	3	3								3	
Extraction, simple..... 1												
Extraction, combined operation.....	Senile cataract.....	1	1								1	
Iridectomy..... 1												
Iridocapsulotomy..... 1	Secondary cataract.....	2	2								2	
Enucleation.....	Gunshot wound involving eye.....	6	6					6				
Do.....	Destruction of eye.....	1	1					1				
Do.....	Crushing of eye.....	1	1			1						
Do.....	Laceration of eye.....	1	1			1						
Do.....	Rupture of sclera.....	1	1					1				
Do.....	Punctured wound of eye.....	1	1					1				
Do.....	Panophthalmitis.....	3	3					3				
Do.....	Leukoma and staphyloma.....	1	1					1				
Do.....	Staphyloma.....	1	1					1				
Do.....	Retrolbulbar abscess.....	1	1					1				
Iridectomy.....	Iris caught in scar.....	3	3								3	
Tenotomy, internal rectus..... 1												
Advancement, external rectus..... 1	Convergent strabismus.....	2	2								2	
Advancement, internal rectus.....												
Plastic repair.....	Divergent strabismus.....	2	2								2	
Excision and suture..... 31	Ectropion, upper lid.....	1	1								1	
McReynolds' operation..... 19	Old deformity eyelid.....	2	2								2	
Excision and burial of stump..... 1												
Transplantation..... 19	Pterygium.....	70	70					3			67	
Incision of canaliculus..... 4												
Plastic operation..... 1	Dacryocystitis.....	5	5								4	1
Splitting of canal.....	Occlusion of canaliculus.....	2	2								2	
Canthotomy.....	Contraction of external canthus.....	1	1								1	
Curettement..... 2												
Cauterization..... 1	Corneal ulcer.....	4	4								4	
Removal of foreign body..... 1												
Incision and curettement.....	Corneal granuloma.....	1	1								1	
Expression.....												
Excision..... 12	Trachoma.....	6	6								6	
Excision and curettement..... 8												
Do.....	Chalazion.....	20	20								18	2
Excision.....	Cyst subconjunctival.....	2	2								2	
	Cyst sebaceous, outer canthus.....	1	1								1	
Extraction.....	Foreign body in cornea.....	34	34								34	
Extraction by electromagnet.....	Piece of steel in retina.....	1	1								1	
Suturing and cleansing.....	Laceration of lid.....	4	4					1			3	
EAR.												
Mastoidotomy..... 22												
Mastoidotomy (Bezold)..... 1												
Schwartze's operation..... 1	Mastoiditis.....	20	20					27			2	
Radical operation..... 3												
Semiradical operation..... 2												
Incision and drainage..... 13												
Paracentesis..... 60												
Curettement necrosed tissue..... 1	Otitis media.....	74	74					6	1		67	

TABLE NO. 66.—Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
EAR—continued.												
Incision and curettement. 13	Otitis externa.....	34	34				1	4			10	19
Incision and drainage.. 21		Abscess external auditory canal.	1	1							1	
Do.....			1	1							1	
Removal.....	Polypus external auditory canal.											
NOSE.												
Removal of ethmoid cells..... 1	Frontal sinusitis.....	24	24					10			14	
Curettement..... 1												
Turbinectomy..... 8												
Crushing of turbinate.. 3												
Sinusotomy..... 5												
Killian's operation..... 2												
Submucous resection..... 2												
Partial turbinectomy... 2												
Hajeo luc.....	Sinusitis, frontal and ethmoidal.	1	1					1				
Turbinectomy.....	Ethmoidal sinusitis.....	2	2								2	
Do..... 1	Ethmoiditis.....	3	3					1			2	
Ethmoidectomy..... 2												
Puncture and drainage. 1	Maxillary sinusitis.....	2	2								2	
Resection of antrum and drainage..... 1												
Incision and drainage.....	Abscess of antrum.....	1	1								1	
Rhinoplasty, normal contour of nose restored by graft from eighth costal cartilage.	Saddle nose.....	1	1					1				
Fracture and replacement..	Deformity of nasal bones..	1	1					1				
Refracture and resetting... 1	Fracture of nose, old.....	1	1								1	
Do.....	Nasal deviation, due to fracture.	1	1								1	
Plastic operation.....	External nasal deformity..	6	6					3			3	
Removal of spur..... 2	Deviation and deflection of septum.	299	299					20			279	
Submucous resection..... 285												
Resection of septum..... 12	Dislocation of septum.....	1	1								1	
Resection and reduction.....	Nasal obstruction.....	2	2								2	
Submucous resection.....												
Removal of tips of turbinate..... 2												
Turbinectomy..... 49	Hypertrophy of turbinate.	76	76					3			73	
Partial turbinectomy..... 23												
Linear cauterization..... 1												
Electric cauterization..... 1	Rhinitis, chronic, hypertrophic.	1	1								1	
Removal of spur from inferior turbinate and ridge from septum.												
Cauterization..... 1	Epithelioma, nostril.....	2	2								2	
Excision and plastic repair..... 1												
Removal with snare..... 15	Polypus.....	41	41					1			39	1
Excision..... 26	Tumor, postnasal.....	1	1					1				
Do.....												
Submucous removal..... 1	Septal spur.....	8	8								8	
Removal with saw..... 1												
Resection..... 6	Adenoids.....	45	45					17	2		21	5
Curettement..... 2												
Adenectomy..... 43												
MOUTH AND PHARYNX.												
Excision and suture..... 1	Epithelioma, lower lip....	2	1	1				2				
Excision with plastic repair..... 1												

TABLE No. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.
	MOUTH AND PHARYNX—continued.										
Excision.....	Chronic ulceration of lip...	1	1								1
Do.....	Chancere of lip.....	1	1								1
Do.....	Chancere of tongue.....	1	1								1
Excision and cauterization.....		1									
Resection one-third of tongue.....		1									
Block dissection side of neck, ligation of lingual artery, excision half of tongue, and cauterization of floor of mouth.....	Carcinoma of tongue, recurrent.	3	1	2				3			
Excision.....	Carcinoma, submaxillary.....	1	1						1		
Exploratory incision.....	Sarcoma, parotid gland.....	1	1					1			
Incision and drainage.....	Adenitis, parotid gland.....	1	1								1
Do.....	Adenitis, sublingual.....	2	2								2
Incision and extraction.....	Stomatitis.....	1	1								1
Extirpation.....	Cyst, sublingual.....	1	1					1			
Excision.....	Hypertrophy of lingual tonsil.....	4	4					1			3
Removal of tonsil and tumor.....	Papilloma of tonsil.....	1	1				1				
Tonsillectomy.....	Submerged tonsil.....	3	3					3			
Incision and drainage.....	Ludwig's angina.....	2	2			1					1
Tonsillectomy.....	Tonsillitis.....	242	242					36	1	10	194
Do.....	Hypertrophy of tonsil.....	377	377			1		121			252
Incision and drainage.....	Tonsillar and peritonsillar abscess.....	135	135					3		3	64
Curettement.....		3									
Adenectomy.....	Adenoids, pharyngeal.....	42	42					28			13
	NECK AND THORAX.										
Excision right lobe.....		1									
Thyroidectomy.....	Goiter.....	7						9			
Ligation superior poles of thyroid.....		1									
Ligation, thyroid arteries.....	Goiter, exophthalmic.....	1						2			
Resection right lobe and isthmus.....		1									
Incision and drainage.....	Cyst, glosso-pharyngeal.....	1	1								1
Excision.....	Fistula, thyro-glossal.....	1	1								1
Electric cauterization.....	Tuberculous larynx.....	3	3								3
Suturing.....	Incised wound of throat.....	1	1					1			
Resection of rib.....		2									
Paracentesis.....	Pleurisy.....	13					1	2			16
Aspiration.....		9									
Costatectomy.....		5									
Resection of rib and drainage.....	Empyema.....	18	23	20	3			13		4	4
Do.....	Empyema and abscesses of lung.....	1				1		1			
Resection of rib and cauterization.....	Abscess of lung, due to fractured rib with laceration of pleura.....	1				1		1			
Aspiration.....	Gangrene of lung.....	1	1					1			
Exploration.....	Gunshot wound with laceration of lung.....	1				1		1			

TABLE NO. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
ABDOMEN.											
Gastroenterostomy..... 11	Ulcer of stomach.....	13	13					13			
Gastroenterostomy posterior..... 1											
Laparotomy exploratory..... 1	Suspected ulcer of stomach.....	3	3					3			
Gastrostomy, negative exploration.....											
Gastropexy (Rovsing).....	Gastropexis, severe.....	1	1					1			
Gastrostomy, partial.....	Hour-glass stomach.....	1	1					1			
Exploration, rent sutured.....	Rupture lesser curvature, near pyloric end of stomach.....	1	1					1			
Posterior gastrojejunostomy..... 6	Ulcer of duodenum.....	15	12			3	1	14			
Excision of ulcer, and gastrojejunostomy..... 5											
Excision of ulcer and suture drainage..... 1											
Closure of perforation..... 1											
Exploration and closure with suture..... 1											
Exploratory operation..... 1	Hemorrhage, post-operative after excision and repair of ruptured ulcer of duodenum.....	1	1							1	
Jejunostomy.....											
High exploratory operation.....	Ulcer of gall bladder and stomach.....	1	1					1			
Omentopexy.....	Cirrhosis of liver, with perforations.....	1	1					1			
Exploratory puncture, with trocar..... 1	Abscess of liver.....	6	5	1				6			
Incision and drainage..... 4											
Thoraco-hepatotomy..... 1	Cholecystitis.....	24	23	1				24			
Cholecystotomy..... 8											
Cholecystectomy..... 10											
Cholecystectomy..... 6											
Laparotomy exploratory.....											
Cholecystotomy..... 2	Suspected cholecystitis.....	1	1					1			
Cholecystotomy..... 1	Cholelithiasis.....	8	8					8			
Cholecystotomy..... 5											
Exploration, gall bladder and liver.....	Cholelithiasis with contracted gall bladder.....	2	2					2			
Exploration and appendectomy.....	Suspected empyema, gall bladder.....	1	1					1			
Paracentesis.....	Cirrhosis of liver hypertrophic.....	1	1					1			
Cholecystectomy.....	Cirrhosis of liver, with ascitis.....	2	2					2			
Laparotomy.....	Fistula of gall bladder after cholecystotomy.....	1				1		1			
Cholecystotomy.....	Hepatitis.....	1	1					1			
Cholecystotomy.....	Cholangitis.....	1	1					1			
Cholecystotomy.....	Pancreatitis chronic.....	1	1					1			
Appendectomy..... 1,229	Appendicitis (9 appendectomies were incidental to other operations).....	1,237	1,222	2	13			1,212	23		2
Incision and drainage of abscess..... 8	Appendicitis with intestinal obstruction.....	1			1			1			
Enterostomy (secondary appendectomy).....											
Appendectomy.....	Appendicitis tuberculous.....	1	1					1			
Exploration, negative.....	Suspected appendiceal abscess.....	1	1					1			
Incision and drainage.....	Sinus following appendectomy.....	2	2					2			

TABLE No. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
ABDOMEN—continued.											
Andrews's operation . . . 3	Inguinal hernia (8 recurrent).	643	643					606	19		18
Bassini's operation 394											
Bassini's modified operation 36											
Ferguson's operation . . . 71											
Ferguson's modified operation 76											
Halstead's operation . . . 8											
Plastic operation (technic not stated) 2											
Repair of hernia (operation not stated) . . . 48											
Transplantation, rectus muscle 5											
Reduction, and purse-string suture.											
Excision of sac, overlapping of fascia 4	Richters' hernia	1	1					1			
Repair of hernia (operation not stated) 5											
Mayo's operation 6											
Mayo's modified operation 9											
Laparotomy, fascia closed with mattress suture 2											
Plastic operation 1	Ventral hernia (5 post-operative).	28	28					26	1		1
Repair by overlapping peritoneum and sliding muscles 1											
Appendectomy, closure of wounds in fascia and muscles 1											
Bassini's operation 1											
Coley's purse-string operation 1											
Oschmir's operation . . . 1	Femoral hernia	5	5					5			
Herniotomy (operation not stated) 2											
Bassini's operation	Relaxed inguinal ring	2	2					2			
Incision curetment and exposure.											
Celiotomy, suture of liver and drainage . . . 1	Sinus following herniotomy.	1	1					1			
Celiotomy, closure of wounds of stomach and sigmoid 1											
Celiotomy, exploratory . . 2	Gunshot wound, perforating, abdomen.	11	9		2			11			
Celiotomy, exploratory and appendectomy . . . 1											
Celiotomy, resection of cecum with 1½ feet of ileum, lateral anastomosis of ileum and ascending colon 1											
Celiotomy and enterorrhaphy 1											
Celiotomy and suture 5 loops of bowels 1											
Resection 8 inches small intestine and end to end anastomosis 1											
Plastic operation 1											
Laparotomy 1											
Kammerer incision, rupture closed with 2 rows of Lambert sutures.											

TABLE No. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
	ABDOMEN—continued.											
Laparotomy, repair of gut, toilet of abdomen and drainage.	Rupture of small intestine, traumatic.	1	1					1				
Laparotomy.....	Contusion of abdomen.....	1	1					1				
Do.....	Contusion of intestines and kidneys, internal hemorrhage.	1				1				1		
Laparotomy, exploratory.....	Stab wound abdomen.....	2	2					2				
Exploration and repair. 1	Evisceration of intestines through former laparotomy wound.	1	1				1					
Intestines replaced, and abdominal wall sutured.	Intussusception of ileum..	1	1					1				
Resection of ileum.....	Intestinal obstruction.....	5	4			1		4			1	
Laparotomy.....	Intestinal obstruction caused by Meckel's diverticulum.	2	1			1		2				
Laparotomy and enterostomy.....	Lane kink.....	6	6					6				
Removal of diverticulum.....	Jackson's membrane.....	2	2					2				
Adhesions severed, raw surface covered with peritoneum.....	Meckel's diverticulum.....	1	1					1				
Sigmoidopexy.....	Stricture of ileum, tuberculous.	2	2					2				
Ligation and division..	Colitis, ulcerative, with intramural abscess.	1				1		1				
Kink released.....	Peritonitis, tuberculous..	3	3					3				
Dissection.....	Peritonitis.....	11	7			4		11				
Excision, and suture of intestine.	Gangrene of mesentery, ileum and ileocecal valve.	1				1		1				
Lateral anastomosis.....	Perforated ulcer of ileum..	1	1					1				
Laparotomy, exploratory..	Fecal fistula.....	2	2					2				
Do.....	Fistulous tract, lower abdominal quadrant.	1	1					1				
Laparotomy and drainage.....	Painful peritoneal adhesions, post-operative.	4	4					4				
Laparotomy and separation of adhesions..	Abdominal adhesions.....	3	3					3				
Appendectomy.....	Adhesions greater portion, transverse colon.	1				1		1				
Resection head of cecum, and 15 inches of ileum, anastomosis of ileum and ascending colon.	Adhesions following appendectomy.	3	3					3				
Enterostomy.....	Adeno-carcinoma, gastric.	1	1					1				
Ileo-colostomy and anastomosis.....	Carcinoma, gastric.....	1	1					1				
Excision.....	Sarcoma, caput coli.....	1	1					1				
Dissection and removal..	Carcinoma, gastric, inoperable.	3	3					3				
Separation of adhesions.....	Sarcoma, cecum, inoperable.	1	1					1				
Adhesions divided, ends turned in.....												
Laparotomy exploratory.....												
Do.....												
Do.....												
Adhesions released.....												
Pylorotomy and gastro-enterostomy (Polys).												
Gastroenterostomy.....												
Resection of cecum.....												
Laparotomy, exploratory..												
Do.....												

TABLE No. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or Injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
ABDOMEN—continued.												
Laparotomy.....	Carcinoma of pylorus, extensive.	3	3					3				
Do.....	Carcinoma of liver.....	2	2					2				
Do.....	Tumor, malignant of pancreas and upper abdominal viscera, inoperable.	1	1					1				
Do.....	Tumor, retroperitoneal.	1	1					1				
Laparotomy and removal of tumor.	Gumma on omentum.....	1	1					1				
Laparotomy and excision of gland.	Enlarged lymphatic gland, meso-colon.	1	1					1				
Incision and exploration 1	Subphrenic abscess.....	2	2					2				
Incision and drainage.. 1		2	2					2				
Do.....	Abscess, peritoneal cavity, post-operative.	2	2					2				
Do.....	Abscess hypochondriac region.	2	2					1	1			
Do.....	Abscess, umbilical.....	1	1					1				
Curettement.....	Sinus, subcostal.....	1	1					1				
Paracentesis.....	Ascites.....	8	8							6	2	
ANUS AND RECTUM.												
Curettement and drainage..... 8	Ischio-rectal abscess.....	88	88					43	4	3	26	12
Incision and packing..... 1												
Incision and drainage.. 77	Peri-rectal abscess.....	9	9					5			3	1
Incision and curetment.. 2												
Do..... 2	Prolapse of rectum.....	6	4	1	1			6				
Incision and drainage.. 7												
Sigmoidopexy with shortening of meso-sigmoid..... 1	Multiple annular strictures of rectum.	2	1			1	1	1				
Whitehead's operation.. 1												
Tuttle's operation..... 1	Fistula in ano.....	67	66	1			2	51	2	1	11	
Resection..... 1												
Cauterization..... 1	Sinus at site of old fistula in ano.	2	2					1			1	
Reduction, and dilatation of sphincter..... 1												
Dilatation..... 1	Fissure of anus.....	13	13				1	11				1
Excision and cautery.. 1												
Excision and suture.... 4	Fistula in ano.....	67	66	1			2	51	2	1	11	
Excision..... 43												
Excision, curettement, and packing..... 17	Sinus at site of old fistula in ano.	2	2					1			1	
Curettement..... 1												
Dilatation and cautery.. 1	Fissure of anus.....	13	13				1	11				1
Curettement..... 1												
Incision and drainage.. 1	Fistula in ano.....	67	66	1			2	51	2	1	11	
Curettement..... 1												
Incision and curettement..... 2	Fissure of anus.....	13	13				1	11				1
Divulsion..... 3												
Divulsion and cautery.. 6	Fistula in ano.....	67	66	1			2	51	2	1	11	
Excision and closure... 1												

TABLE No. 66.—Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
ANUS AND RECTUM—contd.												
Clamp and cautery..... 43	Hemorrhoids.....	806	806				16	619	8	100	3	
Clamp cautery and suture..... 164												
Excision..... 46												
Excision and suture..... 31												
Excision and ligation..... 336												
Excision and clamp..... 3												
Excision, clamp, and cautery..... 33												
Excision, ligation, and suture..... 40												
Ligation..... 12												
Ligation and excision..... 44												
Ligation and clamp..... 4												
Incision and eversion..... 4												
Incision and evacuation of clot..... 23												
Incision and suture..... 15												
Whitehead's operation..... 2												
Pflicher's operation..... 3												
Thewell-Thomas's operation..... 1												
Allingham's operation with removal of polypus..... 1												
Cauterization..... 1												
Packing of rectum.....												Secondary hemorrhage after operation for hemorrhoids.
Anus dilated, bleeding point sutured.	Hemorrhage post-operative following appendectomy.	1	1					1				
Subcutaneous division of nerves.....	Pruritis ani.....	1	1					1				
Excision..... 1	Condylomata, circumanal.....	6	6					4		2		
Excision and cautery..... 4												
Excision and suture..... 1	GENITO-URINARY SYSTEM.											
Oorchidectomy.....	Sarcoma of testicle.....	1	1								1	
Do.....	Chondroma.....	1	1					1				
Do..... 2	Orchitis.....	3	3					3				
Incision and drainage..... 1												
Oorchidectomy.....	Tuberculous testicle.....	10	10					10				
Do.....	Gangrene of testicle.....	1	1					1				
Do.....	Atrophy of testicle.....	1	1					1				
Do..... 1	Epididymo-orchitis.....	2	2					1	1			
Epididymotomy..... 1												
Oorchidectomy and resection of scrotum.	Tuberculous testicle and scrotum.	2	2					2				
Bassini's method of scrotal implantation..... 1	Undescended testicle.....	12	12					11		1		
Oorchidectomy..... 7												
Scrotal implantation, method not stated..... 4												
Excision portion of cord.....	Tumor of spermatic cord.....	1	1					1				
Excision.....	Cyst of cord.....	1	1					1				
Vasectomy.....	Vesiculitis.....	1	1					1				

TABLE NO. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
GENITO-URINARY SYSTEM—continued.												
Excision of sac..... 30	Hydrocele.....	92	92				77	1		12	2	
Eversion of sac..... 5												
Resection of sac..... 1												
Bottle operation..... 32												
Jaboulay's operation... 4												
Longuet's operation..... 1												
Valkmann's operation. 1												
Von Bergmann's operation..... 4												
Incision and drainage... 3												
Paracentesis..... 5												
Aspiration..... 4	Varicocele and orchitis....	1	1			1						
Incision of sac and suture..... 1												
Radical operation..... 1												
Amputation of scrotum..... 1												
Ligation and excision... 22												
Varicoelectomy, site not stated..... 50												
Resection of veins..... 9												
High excision..... 163												
Low excision..... 48												
Bennett's operation..... 1												
Bevan's operation..... 3	Varicocele.....	296	296			2	237	9		50		
Incision and ligation... 1												
Radical cure..... 1												
Incision and drainage... 14												
Epididymectomy..... 51												
Epididymotomy..... 147												
Hagner's operation..... 1												
Hogan's operation..... 5												
Evacuation of clot and ligation of veins..... 1												
Evacuation..... 1												
Nephrectomy.....	Hematocoele, 1 following a varicoelectomy.	2	2				2					
Do.....	Tuberculous kidney.....	3	3				3					
Nephrolithotomy.....	Pyonephrolithiasis.....	1	1				1					
Nephrotomy..... 1	Nephrolithiasis.....	3	3				3					
Nephrectomy..... 1	Pyonephrosis.....	2	2				2					
Nephrotomy.....	Suspected pyonephrosis... 1	1	1				1					
Do.....	Nephralgia, chronic..... 1	1	1				1					
Nephropexy.....	Floating kidney..... 1	1	1				1					
Exploration, drainage, and suture..... 1	Rupture of kidney..... 4	4	4				4					
Nephrectomy..... 3	Hydronephrosis..... 1	1	1				1					
Incision and drainage... Do.....	Perinephritic abscess..... 5	5	5				5					
Incision and drainage with fixation.....	Cysts large, multilocular, kidney..... 1	1	1				1					
Laparotomy, toilet of pelvis, peritoneum closed, and bladder drained through space of Retzius.	Rupture of bladder, traumatic, complicated with fracture of pelvis..... 1	1	1				1					
Supra-pubic cystotomy.... Do.....	Rupture of bladder, extra-peritoneal..... 1	1	1				1					
Do.....	Septic cystitis..... 2	2	2				2					
Do.....	Tumor of bladder..... 1	1	1				1					
Do.....	Foreign body in bladder... 1	1	1				1					
Do.....	Retention of urine..... 1	1	1				1			1		
Do.....	Hypertrophy of prostate... 8	8	8				8					
Supra-pubic cystotomy, and perineal section.	Rupture of deep urethra, and urinary infiltration..... 1	1	1				1					
Urethrotomy and drainage.	Rupture of urethra, and urinary abscess..... 1			1			1					
Urethrotomy, perineal.... Do.....	Rupture of urethra with perivesical hemorrhage..... 1	1	1				1					
Do.....	Calculus, urethral, impacted..... 1	1	1				1					

TABLE No. 66.—Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.
	NERVOUS SYSTEM—contd.										
Freeing by dissection of involved branches of median nerve.	Neuralgia, terminal branches of median nerve.	1	1					1			
Freeing of nerve.	Adherence of ulnar nerve to scar.	2	2					2			
Dissection from scar tissue.	Pain, distribution ulnar nerve.	1	1					1			
Plastic repair of structures.	Neuralgia, peroneal branches of sciatic nerve.	1	1					1			
Exploratory incisions, with injection of eucaine "B" solution into nerves sheath.	Neuritis, sciatic.	1	1								1
	SKIN AND CELLULAR TISSUE.										
Curettement and drainage.	Abscess.	2									
Incision and drainage.		664	671	1		5	33		18	362	254
Incision, curettement, and drainage.	Abscessed muscles entire leg following lymphangitis.	6									
Multiple incisions, through and through drainage.		1			1		1				
Excision and drainage.	Carbuncle.	18									
Incision and drainage.		47	70	69		1	1	8			35
Multiple incisions and drainage.	Cellulitis.	1									
Incision and curettement.		4									
Curettement and drainage.	Gas gangrene (aerogenes capsulatus).	2									
Incision and drainage.		251	255	1		4	26		5	133	88
Multiple incision and drainage.	Fordey's disease.	3									
Exploration and drainage.	Erysipelas.	1				1					1
Excision V-shaped bit for pathological examination.	Fistula, chronic, over coccyx.	1	1					1			
Incision and drainage.	Sinus, persistent, coccygeal	1	1					1			
Excision of sinus.	Sinus.	2	2			1				1	
Incision and drainage.	Sinus thigh.	1	1					1			
Incision, curettement, and drainage.	Pilonidal sinus.	1	1								1
Opening sinus, and splinting leg.	Denuded area.	2	2					2			
Excision.	Ulcer.	1	1								1
Skin grafting.	Phagedenic ulcer.	1	1					1			
Excision.	Persistent indolent ulcer.	1	1						1		
Cauterization.	Adherent scar, patella.	1	1					1			
Excision of ulcer and underlying indurated tissue.	Adherent scar.	1	1							1	
Plastic operation.	Painful scar.	4	4					2			2
Circular incision and undermining scar.	Nevus.	3	3					1			2
Excision and suture.	Keloid.	1	1							1	
Excision.	Clavus and callous.	14	14					1			9
Do.											4
Do.											
Do.											
Cotting's operation.	Ingrowing toenail.	14	435	433	2		5	15		10	387
Keller's operation.		2									18
Evisulsion.	Deformed toenail.	70									
Partial excision.	Ingrowing finger nail.	109									
Removal of nail, curettement, and cauterization.	Hypertrophy of nail.	11	5	5				1			3
Excision.			1	1							1
Do.			2	2				1			1
Do.											

TABLE No. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
BONES—continued.												
Excision.....	Cervical rib.....	1	1					1				
Removal of fragments and suture.....	Fracture, compound comminuted, humerus.....	1	1					1				
Incision, and removal of fragments.....	Fracture external condyle, humerus.....	1	1					1				
Removal of Lane plate.....	Fracture, old, of humerus.....	1	1					1				
Removal of capitellum.....	Fracture of capitellum.....	1	1					1				
Application of Lane bone plate.....	Fracture compound radius and ulna.....	1	1					1				
Reduction and suture of radial fragments.....	Fracture ununited radius and ulna.....	2	2					2				
Intermedullary bone grafts.....												
Incision and removal of fragments.....	Fracture of elbow.....	1	1					1				
Incision reduction and plating.....	Fracture of radius.....	1	1					1				
Excision of fragments.....	Insertion fracture olecranon, ulna.....	1	1					1				
Incision, loosening, and replacement of fragment.....	Epiphyseal separation with displacement distal end of radius.....	1	1					1				
Removal head of radius.....	Fracture lower end of radius.....	1	1					1				
Reduction, drilled, united.....	Fracture of radius.....	1	1					1				
Lane plate applied to radius and ulna.....	Colles' fracture.....	1	1					1				
Excision of scaphoid.....	Fracture of carpal scaphoid.....	3	3					3				
Excision of fragment.....												
Thoracostomy, resection and drainage.....	Fracture of rib, with laceration of pleura.....	1	1					1				
Application of Lane plate.....	Fracture lower jaw (1 gunshot). ..	7	7					5	1		1	
Wiring.....												
Freshening of fragments and wiring.....	Fracture ununited, lower jaw.....	1	1					1				
Incision and wire suture.....	Fracture of pubic bone.....	2	2					2				
Incision and removal of suture.....												
Laparotomy and reduction.....	Fracture of pelvis and rupture of bladder.....	1	1					1				
Application of Lane plate.....	Fracture of femur.....	5	4		1			5				
Incision and drainage.....	Fracture, of femur, infected.....	1	1					1				
Surgical fracture, ends freshened, and application of Lane plate.....	Fracture of femur, old, overlapping.....	1	1					1				
Excision of fragments.....	Gunshot fracture of femur.....	1	1					1				
Wiring of fragments.....												
Incision and approximation of fragment.....	Fracture of patella.....	4	4					4				
Open reduction and suture.....	Fracture, compound of patella.....	2	2					2				
Suture of periosteum.....												
Reduction and removal of fragments.....	Fracture compound, tibia and fibula.....	4	4					4				
Fragments freshened, Lane plate applied.....												
Removal of Lane plate.....	Fracture compound transverse, tibia.....	1	1					1				
Wiring of fragments.....												
Incision and replacement.....												

TABLE NO. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
BONES—continued.												
Fixation of ends with Kangaroo tendon.... 1	Fracture of tibia and fibula (3 old ununited).	9	9					8	1			
Freshening and wiring of ends..... 1												
Bone transplant (inlay $\frac{1}{4}$ inch by 8 inches).... 1												
Freshening ends and wiring of fragments.... 1												
Open reduction and wiring of tibia..... 2												
Removal of Lane plate. 1	Fracture of tibia, gunshot (1 old).	2	2								2	
Incision and removal of wire..... 1												
Lane plating..... 1												
Removal of fragments and bullet..... 1												
Excision of diseased bone, and cast applied 1												
Open reduction and removal of fragments..... 1	Gunshot wound, leg and foot.	1	1					1				
Wiring of fragments.... 1												
Application of Lane plate..... 4												
Removal of Lane plate. 3												
Application of Lane plate..... 3												
Removal of Lane plate. 2	Fracture, compound of tibia (2 old).	5	5					3	2			
Insertion of steel pin through os calcis for extension (Steinmann).												
Nailing internal malleolus to tibia.												
Bone graft to replace defects												
Incision and replacement...												
Removal detached bones, plantar surface.	Fracture, compound, comminuted foot.	1	1					1				
Extraction splinters of bone												
Osteotomy.....												
Severing of union, reduction of overlapping, and extension.												
Open reduction and removal of fragments.... 1												
Removal of fragments, suture and drainage.... 3	Fracture, compound of phalanx.	4	4					3			1	
Removal of fragments.....												
Palmar incision and removal of fragments.												
Resection head second metatarsal.												
Excision.....												
Do.....	Gunshot wound of phalanx.	2	2					1		1		
Bone graft.....												
Curettement.....												
Excision.....												
Excision (chiseling).....												
Excision portion of tibia and fibula..... 1	Inability to flex index finger.	1	1					1				
Removal of dead bone.. 1												
Curettement and drainage..... 15												
Excision of bone and sinus..... 1												
Incision and curettement..... 4												
	Metatarsalgia.....	1	1					1				
	Calcaneal spurs.....	1	1					1				
	Deformity head of radius..	1	1					1				
	Fracture, mal-union, bone not stated.	1	1					1				
	Caries of tibia.....	1	1					1				
	Exostosis.....	9	9					9				
	Osteoma.....	1	1				1					
	Necrosis.....	22	20	2			1	13	2		2	4

TABLE No. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	Nme.
AMPUTATIONS—continued.												
Disarticulation, thumb....	Contused wound.....	1	1					1				
Disarticulation, finger....	Onychia.....	1	1									1
Amputation of toe.....	Crushing.....	5	5					5				
Do.....	Gunshot wound.....	4	4					3	1			
Do.....	Lacerated wound.....	2	2					2				
Do.....	Traumatic amputation.....	1	1					1				
Do.....	Overriding toe.....	4	4					4				
Do.....	Hammer toe.....	23	23				1	15			7	
Do.....	Deformed toe.....	3	3					3				
Do.....	Necrosis.....	1	1								1	
Do.....	Other disease.....	4	4					2			2	
Plastic operation with amputation of three metatarsophalangeal joints.	Traumatic amputation all toes, left foot.	1	1				1					
FOREIGN BODIES.												
Incision and extraction....	Piece of steel in eye.....	1	1					1				
Do.....	Piece of glass.....	4	4					2			2	
Do.....	Needle (8 fragments in one case).	3	3					1			2	
Do.....	Steel pin.....	1	1									
Do.....	Splinter.....	3	3								3	
Do.....	Fish bone in thumb.....	1	1								1	
Esophagoscopy.....	Coin in esophagus.....	1	1					1				
Extraction.....	Fish hook.....	2	2								2	
Removal of bullet.....	Bullet in hand.....	5	5					4			1	
Excision.....	Bullet in foot.....	1	1					1				
Do.....	Bullet, fragments of, in leg	1	1								1	
Incision and extraction....	Bullet imbedded in thigh.....	1	1					1				
Do.....	Retained bullet, sole of foot	1	1								1	
Exploration and removal	Bullet imbedded in tibia.....	1	1					1				
Removal of steel jacket.....	Steel jacket in leg.....	1	1							1		
Incision and removal.....	Small piece of shell in chest	1	1					1				
Extraction of shot.....	Two buckshot.....	1	1									1
Incision and exploration....	Bullet in hand.....	1				1		1				
Incision and extraction....	Bullet.....	13	13					4			8	1
Extraction of bullet.....	Gunshot wound chest, retained bullet.	2	2				1				1	
Do.....	Bullet in elbow.....	1	1						1			
Do.....	Bullet in ankle.....	1	1					1				
TUMORS.												
Excision.....	Sarcoma.....	3	3					2			1	
Excision of clavicle and skin graft.....	Carcinoma (1 recurrent)....	4	4					3			1	
Excision.....	Epithelioma.....	5	5					2			3	
Excision, radical, epitrochlear and axillary glands.....	Fibro-myxoma of tibia.....	2	1	1			1	1				
Trephining and curettement of tibia.....												
Exploratory incision and ligation of veins.....	Angioma.....	5	5					3		1	1	
Excision.....	Chondroma.....	3	3					1			2	
Do.....	Dermoid cyst.....	2	2					2				
Do.....	Fibroma.....	11	11					1			10	
Partial amputation.....	Hypertrophy of breast.....	1	1								1	
Excision.....	Hemangioma.....	1	1								1	
Do.....	Hygroma.....	1	1									
Do.....	Lipoma.....	29	28			1	1	12			15	1
Do.....	Myoma.....	1	1					1				
Do.....	Neuroma.....	1	1					1				

TABLE NO. 66.—*Surgical operations performed by officers of the Medical Corps on officers and enlisted men of the Army during the calendar year 1916—Continued.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.					
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Nitrous oxide.	Local.	None.
TUMORS—continued.												
Excision..... 7	Papilloma.....	9	9								8	1
Excision and cauterisation..... 2												
Do..... 26												
Incision and curettage..... 3	Sebaceous cyst.....	87	87					10		2	72	3
Incision and drainage... 4												
Excision..... 54												
Do.....	Tumor of breast, nature not stated.	1	1					1				
Do.....	Tumor, nature not stated.	2	2					1			1	
Incision and drainage.....	Tumor, type undetermined	2	2								2	
Cyst removed.....	Benign tumor, nature not stated.	2	2								2	
Excision.....	Hemorrhagic cyst.....	1	1						1			
Do.....	Traumatic cyst.....	1	1					1				
MISCELLANEOUS OPERATIONS.												
Multiple incisions and drainage..... 1	Infected wound.....	26	26					7	1		12	6
Incision and drainage... 25												
Wide incision and drainage.	Infected wound (aerogenes capsulatus).	1	1					1				
Plastic operation on great toe.	Condition not stated.....	1	1					1				
Cleansing, suturing, and drainage.	Lacerated wound.....	22	22					2			4	16
Incision and drainage.....	Punctured wound.....	2	2								2	
Excision of cicatricial tissue.	Old contusion of foot.....	1	1					1				
Resection.....	Painful stump, metacarpal	1	1								1	
Sinus curetted and dead bone removed.	Large scar with sinus from old gunshot wound.	1	1					1				
Suturing and cleansing. 7												
Incision and drainage... 2												
Cleansing and approximation muscles and skin..... 1	Gunshot wound.....	10	9		1			5		1		4
Suture and drainage.....	Incised wound.....	30	30					1			4	25
Incision and drainage.....	Psoas abscess.....	1	1					1				
Excision of muscle specimens.	Trichinosis.....	1	1								1	
Total number of cases		10,129	10,027	31	9	52	99	4,947	97	3183	968	700

REPORT OF THE SURGEON GENERAL

TABLE NO. 674.—By States showing for the National Guard (on upper line) the total cases, deaths, and days for cases from all causes and separately for cases excluding injuries, venereal diseases, alcoholism, and convulsions; also (on lower line) the ratios per 1,000 of mean strength for cases and deaths and for the number of men constantly sick in the year. (Continued.)

States.	Cases on sick report.			Deaths.			Total days treated and constant sick (rate).			Important diseases.					Venereal.
	From all causes.	Excluding injuries, venereal diseases, alcoholism, and convulsions.	From all causes.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and convulsions.	From all causes.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and convulsions.	From all causes.	Typhoid fever.	Malaria.	Dysentery.	Typhus-fever.	Pneumonia.	
Illinois:															
Number.....	8,020	1,888	5	5	5	5	50,074	11,032	4	1.18	78	5	12	18	839
Ratio.....	821.68	281.62	1.41	1.41	.65	18.48	6,011	6,011	1.41	8.39	80.61	1.41	8.39	8.08	180.80
Indiana:															
Number.....	2,004	1,840	6	6	6	6	14,824	10,619	8	1.10	80	.....	12	4	308
Ratio.....	1,101.64	918.58	8.67	8.67	1.19	28.27	17.95	17.95	1.10	1.10	80.78	.....	7.18	9.88	188.68
Iowa:															
Number.....	8,926	8,082	10	8	8	10	19,402	18,822	4	1.71	101	7	8	8	137
Ratio.....	1,622.09	1,321.48	4.28	1.39	1.39	22.71	18.08	18.08	1.71	1.71	81.88	8.00	1.39	1.39	88.70
Kansas:															
Number.....	882	843	1	1	1	1	4,021	3,076	1	.....	7	1	.....	1	68
Ratio.....	1,072.99	680.58	1.22	1.22	.....	18.08	4.58	4.58	1.39	.....	8.88	1.39	.....	1.39	79.07
Kentucky:															
Number.....	809	535	1	1	1	1	6,020	8,988	.....	.....	4	6.12	7	4	118
Ratio.....	707.17	487.65	.87	.....	.....	18.09	7.88	7.88	.....	.....	8.60	6.12	7	8.80	188.88
Louisiana:															
Number.....	1,199	1,029	.....	.....	.....	.....	6,927	6,148	1	1.80	119	17	4	.....	99
Ratio.....	2,180.00	1,876.91	.....	.....	.....	84.41	80.60	80.60	1.80	80.91	88.64	7.87	7.87	.....	40.60
Maine:															
Number.....	448	409	2	2	2	2	2,169	1,787	.....	.....	.....	89	8	1	1
Ratio.....	901.15	801.59	4.42	4.42	.....	18.11	16.11	16.11	.....	.....	.....	118.04	4.42	8.81	9.91
Massachusetts:															
Number.....	997	678	.....	.....	.....	.....	6,680	4,480	8	.....	91	8	8	.....	91
Ratio.....	740.30	586.20	.....	.....	.....	18.47	16.47	16.47	8.06	.....	17.06	8.06	8.06	.....	77.71
Michigan:															
Number.....	2,461	1,881	8	8	8	8	16,885	12,199	1	.....	8	87	8	8	117
Ratio.....	981.40	711.90	1.14	1.14	.....	17.46	12.82	12.82	1.14	.....	1.14	14.00	7.0	1.14	66.88
Minnesota:															
Number.....	2,841	1,842	12	11	11	12	16,614	10,872	8	.....	8	11	8	80	176
Ratio.....	1,158.43	911.43	6.94	6.44	.....	21.11	18.72	18.72	1.68	.....	1.68	8.44	8.44	17.81	87.09
Missouri:															
Number.....	2,850	2,386	6	6	6	6	22,147	16,944	4	1.81	146	8	10	8	90
Ratio.....	1,267.84	1,085.58	2.71	2.71	.....	27.35	20.92	20.92	1.81	2.20	68.98	8.00	4.89	8.00	44.76

Mississippi:	1,010	704	1	1	4,572	2,463	.....	195	2	1	2	133
Number.....	1,010	1,119.24	1.50	1.50	19.86	10.70	.....	310.02	3.13	1.50	3.15	211.45
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Missouri:	1,211	940	3	1	7,828	5,653	.....	11	3	1	3	82
Number.....	1,211	522.80	1.67	.56	11.90	8.50	.....	6.12	1.67	.56	1.67	45.61
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana:	218	160	2	2	1,459	484	.....	.....	20	4	.....	26
Number.....	218	461.10	5.76	5.76	11.49	3.81	.....	.....	57.64	11.53	.....	108.76
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska:	1,263.44	1,337.52	1.25	.....	8,247	6,777	.....	49	4	7	2	14
Number.....	1,263.44	1,337.52	1.25	.....	28.27	23.23	.....	61.48	5.02	8.76	2.51	17.57
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire:	613	459	2	.....	3,654	2,480	.....	1.56	1.56	3.12	.....	42
Number.....	613	716.07	3.12	.....	15.70	10.57	.....	.....	.....	.....	.....	65.53
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey:	1,565.62	1,250.06	4.36	4	7,794	6,109	.....	16	11	6	1	30
Number.....	1,565.62	1,250.06	4.36	4	18.42	14.56	.....	13.96	9.60	5.24	.87	26.13
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico:	495	341	3	2	4,671	2,969	.....	1	1	5	6	63
Number.....	495	635.01	5.50	3.72	23.77	15.11	.....	1.86	1.86	9.31	11.17	115.46
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York:	6,896	5,732	22	15	55,498	44,185	.....	9	215	29	10	174
Number.....	6,896	775.01	2.97	2.03	20.50	17.06	.....	29.07	3.65	3.92	1.35	23.53
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Carolina:	2,388	1,826	8	2	10,824	8,008	.....	2	53	21	5	137
Number.....	2,388	1,063.48	4.66	1.16	17.22	12.89	.....	1.16	7	12.23	2.91	73.97
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Dakota:	533	484	1	1	5,177	4,706	.....	1	12	46	2	7
Number.....	533	1,014.67	2.10	2.10	29.65	27.47	.....	2.10	.....	4.19	4.19	14.67
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio:	3,128	2,453	9	8	18,836	12,739	.....	.....	41	13	16	216
Number.....	3,128	722.53	2.65	2.36	15.16	10.26	.....	.....	12.06	3.53	4.71	63.63
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oklahoma:	723	582	2	.....	5,850	4,615	.....	6	1	3	2	48
Number.....	723	863.50	2.97	.....	23.71	18.71	.....	8.90	1.43	4.45	2.97	71.22
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon:	609	465	.....	.....	2,820	1,979	.....	.....	.....	.....	.....	26
Number.....	609	1,301.68	.....	.....	21.59	15.11	.....	2.79	.....	2.79	2.79	69.53
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania:	4,340	3,240	12	8	30,483	19,670	.....	1	13	17	20	215
Number.....	4,340	551.87	2.04	1.36	14.19	9.15	.....	.17	2.07	2.90	3.41	36.63
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island:	276	214	2	1	1,712	1,385	.....	.....	7	1	1	6
Number.....	276	2,779.22	26.97	12.99	60.76	49.14	.....	64.94	90.91	12.99	12.99	77.62
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Carolina:	777	565	5	5	6,070	4,134	.....	1	13	18	2	116
Number.....	777	550.14	4.87	4.87	16.15	11.00	.....	.97	17.53	1.95	8.76	112.95
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota:	405	343	.....	.....	1,954	1,668	.....	1	3	.....	.....	6
Number.....	405	739.79	.....	.....	11.36	9.87	.....	2.13	.....	.....	.....	12.77
Ratio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE No. 68.—Admissions to sick report, discharges, and deaths, with ratios per 1,000 of mean strength, in which all available data for the decade ending Dec. 31, 1914, are placed in comparison with the year 1915. (See p. 370 for year 1916.)—Continued.

	Decade, years 1905-1914. [Army—Enlisted American troops.]				The Army, 1915. [American troops, enlisted men.]			
	Admissions.		Discharges.		Admissions.		Discharges.	
Mean strength.....	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
S. G. O., 697,415—A. G. O., 709, 371.								
S. G. O., 687,262—A. G. O., 94,729.								
Causes of admission to sick report.								
	Admissions.		Discharges.		Deaths.		Deaths.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Tuberculosis, all.....	2,899	4.16	1,946	2.60	351	0.49	328	3.52
Tuberculosis of lungs.....	2,515	3.61	1,729	2.44	286	.40	260	3.20
Tuberculosis of other organs.....	384	.55	117	.16	65	.09	30	.31
Venerical diseases, all.....	114,253	163.82	1,365	1.91	43	.06	10	.10
Syphilis.....	20,910	29.96	800	1.13	38	.05	78	.82
Gonorrhea.....	21,977	31.51	10	.01	1	.00	47	.06
Soft chancre.....	71,366	102.33	545	.77	4	.00	2	.02
Gonococcus infection.....	143	.20	24	.03	59	.08	29	.31
Cancer and other malignant tumors.....	1,160	1.66	10	.01	5	.00	5	.05
Benign tumors.....	7,764	11.13	208	.29	8	.01	19	.28
Rheumatism, articular, all.....	4,969	7.13	15	.02	451	4.82	6	.06
Acute articular rheumatism.....	2,795	4.01	191	.27	91	.98	14	.15
Chronic articular rheumatism.....	138	.20	49	.07	20	.03	2	.02
Diabetes.....	107	.15	51	.07	14	.02	10	.10
Alcoholism and results.....	16,169	23.18	174	.25	83	.12	24	.25
Other chronic poisoning, including drug habit.....	41	.06	7	.01	4	.00	9	.10
Chronic occupational poisoning.....	411	.59	114	.16	2	.00	2	.02
Encephalitis.....	10	.01	5	.01	25	.04	7	.07
Epidemic cerebrospinal meningitis.....	149	.21	17	.02	76	.11	3	.03
Locomotor ataxia.....	54	.06	22	.03	1	.00	6	.06
Other diseases of spinal cord.....	76	.11	56	.08	3	.00	1	.01
Cerebral hemorrhage, apoplexy.....	216	.31	13	.02	24	.03	7	.07
Paralysis without specified cause.....	1,860	2.67	31	.04	2	.00	4	.04
Mental alienation.....	71	.10	1,291	1.82	6	.01	313	3.80
General paralysis of the insane.....	1,106	1.59	579	.82	3	.00	14	.15
Dementia precox.....	683	.98	360	.51	2	.00	167	1.98
Other varieties of mental alienation.....	1,211	1.74	465	.66	7	.01	132	1.59
Epilepsy.....	4,362	6.28	87	.09	5	.00	66	.69
Neuralgia and neuritis.....	1,211	1.74	465	.66	7	.01	23	.24
Conjunctivitis, all.....	4,362	6.28	87	.09	5	.00	66	.69
Trachoma.....	175	.25	34	.05	1	.00	2	.02
Other diseases of the eye.....	4,360	6.26	338	.56	15	.02	16	.16

Perforitis.....	66	-10	6	-01	8	-01	5	-05	2	02	3	-03
Acute endocarditis.....	95	14	4	01	16	01	9	1.13	47	50	22	03
Organic heart disease.....	1,382	1.98	578	81	146	50	108	1.13	1	50	22	03
Angina pectoris.....	98	-14	32	02	4	02	10	-11	1	01	2	02
Diseases of the arteries, atheroma, aneurism, etc.....	143	-71	12	06	47	07	14	-15	4	04	6	06
Embolism and thrombosis.....	36	10	10	05	13	02	3	-03	2	03	1	01
Hemorrhoids.....	5,018	7.19	8	01	13	02	3	5.88	.....	.....	.....	.....
Hemorrhoidal veins.....	709	1.02	37	03	.....	.....	587	5.88	.....	.....	.....	.....
Varicose.....	2,200	3.26	11	02	.....	.....	245	2.68	.....	.....	.....	.....
Diseases of the lymphatic system.....	4,449	6.66	11	02	.....	.....	677	4.72	.....	.....	.....	.....
Diseases of the nasal fossae.....	12,371	17.67	49	00	.....	.....	1,416	15.18	.....	.....	.....	.....
Diseases of the larynx.....	2,363	3.76	.....	07	.....	.....	216	2.52	.....	.....	.....	.....
Diseases of the thyroid body.....	26,128	38.13	19	03	1	00	34	2.52	.....	.....	.....	.....
Bronchitis.....	26,412	38.44	56	08	2	00	3,260	35.17	.....	.....	.....	.....
Bronchio-pneumonia.....	1,255	2.18	.....	08	5	01	33	2.57	.....	.....	.....	.....
Pneumonia.....	1,517	2.32	8	01	194	04	226	2.78	.....	.....	.....	.....
Pleurisy.....	1,969	2.82	48	07	.....	.....	259	2.78	.....	.....	.....	.....
Pulmonary congestion and pulmonary apoplexy.....	1,021	1.15	.....	01	4	02	1	-01	.....	.....	.....	.....
Pulmonary edema.....	1,074	1.44	56	12	.....	.....	78	-01	.....	.....	.....	.....
Pulmonary emphysema.....	31	04	9	01	1	00	2	02	.....	.....	.....	.....
Diseases of the teeth and annexa.....	5,742	8.23	71	10	.....	.....	494	5.80	.....	.....	.....	.....
Other diseases of the mouth and annexa.....	606	0.87	1	00	.....	.....	84	0.90	.....	.....	.....	.....
Diseases of the pharynx.....	43,804	62.81	3	00	.....	.....	6,071	65.10	.....	.....	.....	.....
Ulcer of stomach.....	128	18	15	02	3	00	23	12.03	.....	.....	.....	.....
Other diseases of stomach (cancer excepted).....	20,250	29.04	64	08	6	01	1,122	12.03	.....	.....	.....	.....
Diarrhea and enteritis.....	31,841	45.66	57	06	15	02	2,639	31.51	.....	.....	.....	.....
Ankylostomiasis.....	556	1.23	1	05	1	00	41	1.44	.....	.....	.....	.....
Intestinal parasites.....	1,127	1.62	.....	06	.....	.....	95	1.08	.....	.....	.....	.....
Appendicitis.....	4,046	5.86	41	06	86	12	815	1.08	.....	.....	.....	.....
Hernia.....	3,077	4.31	310	44	18	03	363	3.79	.....	.....	.....	.....
Disease of the anus and fecal fistula.....	601	0.86	6	01	.....	.....	76	0.81	.....	.....	.....	.....
Other diseases of the intestines.....	16,246	23.29	38	06	.....	.....	2,772	26.72	.....	.....	.....	.....
Cirrhosis of liver.....	99	-14	15	02	13	02	6	-06	.....	.....	.....	.....
Biliary calculi.....	191	3.27	2	03	19	03	9	0.10	.....	.....	.....	.....
Other diseases of liver and gall bladder.....	2,744	3.93	21	08	44	06	399	4.17	.....	.....	.....	.....
Peritonitis.....	48	-07	3	00	17	02	1	-01	.....	.....	.....	.....
Acute nephritis.....	248	0.36	3	00	37	06	34	0.36	.....	.....	.....	.....
Bright's disease.....	442	0.63	123	17	74	10	64	0.66	.....	.....	.....	.....
Other diseases of the kidney and annexa.....	265	0.38	18	08	4	00	27	0.38	.....	.....	.....	.....
Diseases of the bladder.....	1,752	2.51	243	34	1	00	196	2.10	.....	.....	.....	.....
Diseases of the prostate.....	615	-88	4	01	.....	.....	143	1.53	.....	.....	.....	.....
Diseases of the male genital organs (nonvenereal).....	69	10	28	04	.....	.....	15	0.16	.....	.....	.....	.....
Furuncle and carbuncle.....	5,465	7.84	.....	04	.....	.....	403	4.32	.....	.....	.....	.....
Diseases of the urethra.....	17,244	24.73	.....	.....	.....	.....	1,625	17.42	.....	.....	.....	.....
Diseases of the female genital organs (nonvenereal).....	9,004	12.91	9	01	.....	.....	1,283	13.44	.....	.....	.....	.....
Acute abscess.....	1,187	1.70	83	12	2	00	236	2.53	.....	.....	.....	.....
Diseases of the bones.....	2,504	3.59	134	19	.....	.....	382	4.10	.....	.....	.....	.....
Diseases of the joints.....	1,860	2.81	568	80	.....	.....	367	3.94	.....	.....	.....	.....
Congenital malformations.....	1,14	-02	9	01	.....	.....	2	02	.....	.....	.....	.....
Senility.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Febricula, simple continued, and other fevers of undetermined causation.....	3,925	5.63	23	08	1	00	186	1.99	.....	.....	.....	.....
Under observation, undiagnosed and unknown.....	4,437	6.36			22	03	79	0.86				
Maltinger.....	4,468	6.69					35	0.38				

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TABLE 68½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with Porto Rican, and Philippine troops)

Serial Nos.	International classification.	Causes of admission to sick report.	Officers, Army.							
			S. G. O., 4,734—A. G. O., 5,155.							
			Admis- sions.		Retire- ments.		Deaths.		Noneffective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
1	1	Typhoid fever.....	5	1.06			2	0.39	0.61	0.13
2	1a	Paratyphoid fever.....	4	.84					.39	.08
7-11	4	Malaria.....	44	9.29					1.76	.37
7		Estivo-autumnal fever.....	10	2.11					.58	.12
8		Malarial cachexia.....	2	.42					.66	.14
9		Quartan malarial fever.....								
10		Tertian malarial fever.....	27	5.70					.47	.10
11		Undetermined malarial fever.....	1	1.06					.05	.01
12	5	Smallpox and varioloid.....	1	.21					.08	.02
13	5b	Vaccinia.....	1	.21					.00	.00
14	6	Measles.....	1	.21					.03	.01
12	7	Scarlet fever.....								
17	9	Diphtheria.....	2	.42					.05	.01
18	10	Influenza.....	245	51.75			1	.19	4.63	.98
19	12	Asiatic cholera.....								
20	13	Cholera nostras.....	1	.21					.01	.00
21-23	14	Dysentery.....	41	8.66					3.72	.79
21		Bacillary.....	1	.21					.02	.00
22		Entamoebic.....	32	6.76					3.54	.75
23		Unclassified.....	8	1.69					.16	.03
27	18	Erysipelas.....	2	.42					.08	.02
29	19b	Dengue.....	54	11.41					.92	.20
31	19c	German measles.....								
32	19e	Hemoglobinuric fever.....								
34	19g	Mumps.....	5	1.06					.19	.04
37	20	Purulent infection and septicæmia.....	2	.42			1	.19	.07	.02
41	24	Tetanus.....								
42-46	25	Mycoses.....								
48	27	Herberi.....								
49-57	28-34	Tuberculosis (all).....	13	2.75	3	.58	2	.39	7.55	1.60
49-51	28	Tuberculosis of lungs.....	11	2.32	3	.58	1	.19	6.87	1.45
52	29	Miliary tuberculosis, acute.....								
53-57	30-34	Tuberculosis of other organs.....	2	.42			1	.19	.69	.15
58	36	Scoliosis (rickets).....								
59-74	37-38	Veneral diseases (all).....	16	3.38					1.87	.39
59-64	37	Syphilis.....	11	2.32					1.53	.32
65-67	38a	Soft chancre.....								
68-74	38b	Gonococcus infection.....	5	1.06					.34	.07
75-79	39-45	Cancer and other malignant tumors.....	5	1.06			1	.19	1.53	.32
80	46	Benign tumors.....	5	1.06					.12	.03
81-83	47-48	Rheumatism, articular (all).....	15	3.17					1.14	.24
81-82	47	Acute articular rheumatism.....	10	2.11					.73	.15
83-85	48	Chronic articular rheumatism.....	5	1.06					.41	.09
87-88	50	Diabetes.....	1	.21	1	.19			.11	.02
89	51	Exophthalmic goiter.....							.17	.04
97-100	56	Alcoholism and results.....	17	3.59					.37	.08
101-102	57-58	Chronic occupational poisoning.....								
103-104	59	Other chronic poisoning, including drug habit.....								
105-106	60	Encephalitis.....								
107	61	Simple meningitis.....	1	.21			1	.19	.04	.01
108	61a	Epidemic cerebrospinal meningitis.....								
109	62	Locomotor ataxia.....								
110-115	63	Other diseases of spinal cord.....	2	.42					.11	.02
116	64	Cerebral hemorrhage, apoplexy.....	4	.84					.40	.09
117-119	66	Paralysis without specified cause.....	2	.42					.59	.12
120-126	67-68	Mental alienation.....	11	2.32					2.36	.50
127	69	Epilepsy.....	3	.63	1	.19			.18	.04
129-133	73	Neuralgia and neuritis.....	34	7.18	1	.19			2.52	.53
138-141	75a	Follicular conjunctivitis.....	21	4.44					.45	.10
142	75b	Trachoma.....								
166	77	Pericarditis.....								
167	78	Acute endocarditis.....								
169-174	79	Organic heart disease.....	13	2.75	2	.39	1	.19	1.92	.40
175	80	Angina pectoris.....	1	.21					.19	.04
176-177½	81	Diseases of the arteries, atheroma, aneurism, etc.....	9	1.90	7	1.36	2	.39	1.10	.23

ratios per 1,000 of mean strength, for the Army, separately for officers (including American, and grand total, year 1916.

Army, enlisted men (including Porto Rican troops and Philippine Scouts).								Army (entire), officers and enlisted men (including Porto Rican troops and Philippine Scouts).							
S. G. O., 105,720—A. G. O., 105,720.								S. G. O., 110,454—A. G. O., 110,875.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
20	0.19			1	0.01	3.54	0.03	25	0.23			3	0.03	4.15	0.04
110	1.04					10.75	.10	114	1.03					11.14	.10
2,564	24.25			1	.01	66.49	.63	2,608	23.61			1	.01	68.23	.62
640	6.05			1	.01	19.97	.19	650	5.88			1	.01	20.55	.19
6	.06					1.39	.01	8	.07					2.05	.02
20	.19					.53	.01	20	.18					.53	.00
1,680	15.89					40.75	.39	1,707	15.45					41.22	.37
218	2.00					3.85	.04	223	2.02					2.90	.04
10	.09			1	.01	.67	.01	11	.10			1	.01	.75	.01
556	5.20					6.82	.06	557	5.04					6.83	.06
1,319	12.48	2	0.02	9	.09	56.50	.53	1,320	11.95	2	0.02	9	.08	56.51	.51
48	.45			3	.03	4.26	.04	48	.43			3	.03	4.26	.04
37	.35					2.52	.02	39	.35					2.57	.02
3,145	29.75			1	.01	46.28	.44	3,390	30.69			2	.02	50.90	.46
7	.07			1	.01	.60	.01	7	.06			1	.01	.60	.01
653	6.18	9	.09	10	.09	46.12	.44	494	6.28	9	.09	10	.09	49.83	.45
68	.64			1	.01	2.57	.02	69	.62			1	.01	2.59	.02
409	3.87	9	.09	8	.08	37.68	.36	441	3.99	9	.09	8	.07	41.21	.37
176	1.66			1	.01	5.96	.06	184	1.67			1	.01	6.02	.05
52	.49			1	.01	2.39	.02	54	.49			1	.01	2.47	.02
986	9.33					15.60	.15	1,040	9.42					16.59	.15
13	.12					.37	.00	13	.12					.37	.00
318	3.01					13.68	.13	323	2.92					13.87	.13
14	.13			10	.10	.90	.01	16	.14			11	.10	.97	.01
1	.01					.16	.00	1	.01					.17	.00
7	.07					.47	.00	7	.06					.47	.00
2	.02					.40	.00	2	.02					.39	.00
365	3.45	239	2.26	39	.37	170.71	1.70	378	3.42	239	2.26	41	.37	187.27	1.69
332	3.14	226	2.14	35	.33	170.68	1.61	343	3.11	226	2.14	36	.32	177.55	1.60
3	.03	3	.03	2	.02	.73	.01	3	.03	3	.03	2	.02	.72	.01
30	.29	10	.10	2	.02	8.31	.08	32	.30	10	.10	3	.03	8.99	.07
6	.06	1	.01			.45	.00	6	.01	1	.01			.45	.00
10,498	99.30	163	1.54	13	.12	572.50	5.41	10,514	95.18	163	1.54	13	.12	574.37	5.18
2,178	20.60	75	.71	12	.11	180.08	1.70	2,189	19.82	75	.71	12	.11	181.61	1.64
2,374	22.46					117.57	1.11	2,374	21.49					117.57	1.06
5,946	56.25	88	.83	1	.01	274.85	2.60	5,951	53.88	88	.83	1	.01	275.19	2.48
36	.34	4	.04	16	.15	6.81	.07	41	.37	4	.04	17	.15	8.62	.08
148	1.40	2	.02			5.98	.06	153	1.39	2	.02			6.10	.06
588	5.56	19	.18	1	.01	37.76	.36	603	5.46	19	.18	1	.01	38.90	.35
438	4.14	3	.03	1	.01	26.26	.25	448	4.06	3	.03	1	.01	26.99	.24
150	1.42	16	.15			11.50	.11	155	1.40	16	.15			11.90	.11
16	.15	9	.09	3	.03	2.30	.02	17	.15	9	.09	3	.03	2.41	.02
27	.26	21	.20			5.97	.06	27	.24	21	.20			6.14	.06
1,197	11.32	13	.12	3	.03	20.73	.20	1,214	10.99	13	.12	3	.03	21.10	.19
4	.04	1	.01			.52	.00	4	.04	1	.01			.52	.00
46	.44	3	.03			1.94	.02	46	.42	3	.03			1.94	.02
1	.01			1	.01	.02	.00	1	.01			1	.01	.02	.00
1	.01	1	.01			.13	.00	2	.02	1	.01	1	.01	.17	.00
23	.22	2	.02	11	.10	1.80	.02	23	.21	2	.02	11	.10	1.80	.02
18	.17	6	.06	1	.01	4.27	.04	18	.16	6	.06	1	.01	4.27	.04
7	.07	2	.02			1.54	.01	9	.08	2	.02			1.66	.01
4	.04			4	.04	.02	.00	8	.07			4	.04	.42	.00
32	.30	3	.03	1	.01	2.91	.03	34	.31	3	.03	1	.01	3.50	.03
375	3.55	276	2.61	4	.04	83.30	.70	386	3.49	276	2.61	4	.04	85.66	.77
149	1.41	75	.71			12.72	.12	152	1.38	75	.71			12.90	.12
585	5.53	27	.26	1	.01	31.43	.30	619	5.60	27	.26	1	.01	33.95	.31
571	5.40	3	.03			12.54	.12	592	5.36	3	.03			12.99	.12
17	.16	3	.03			.93	.01	17	.15	3	.03			.93	.01
7	.07	1	.01	1	.01	.59	.01	7	.06	1	.01	1	.01	.59	.01
6	.06	1	.01	2	.02	.74	.01	6	.05	1	.01	2	.02	.74	.01
170	1.61	57	.54	18	.17	19.85	.19	183	1.66	57	.54	19	.17	21.76	.20
9	.09	1	.01	1	.01	.59	.01	10	.09	1	.01	1	.01	.79	.01
20	.19	5	.05	4	.04	21.40	.02	29	.26	5	.05	6	.05	3.50	.03

TABLE 684.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with Porto Rican, and Philippine troops)*

Serial Nos.	International classification.	Mean strength.....	Officers, Army.							
			S. G. O., 4734—A. G. O., 5155.							
			Admis- sions.		Retire- ments.		Deaths.		Nonef- fective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Causes of admission to sick report.										
178-179	82	Embolism and thrombosis.....							0.17	0.04
181	83b	Hemorrhoids.....	44	9.29					2.47	.52
183	83d	Varicose veins.....	3	.63					.18	.04
184	83e	Varicocele.....	2	.42					.06	.01
185-187	84	Diseases of the lymphatic system.....	3	.63					.13	.03
193-199	86	Diseases of the nasal fossæ.....	115	24.29					2.17	.46
200-202	87	Diseases of the larynx.....	11	2.32					.07	.01
203-204	88	Diseases of the thyroid body.....	2	.42					.09	.01
205-206	89-90	Bronchitis.....	140	29.57	1	0.19			2.27	.48
207	91	Broncho-pneumonia.....	5	1.06			2	.39	.27	.06
208	92	Pneumonia.....	6	1.27					.16	.03
209-215	93	Pleurisy.....	9	1.90					.42	.09
216-217	94	Pulmonary congestion and pul- monary apoplexy.....								
219	96	Asthma.....	12	2.53					.53	.11
220	97	Pulmonary emphysema.....	1	.21					.20	.04
221	98a	Hemoptysis.....	3	.63					.02	.00
222	98b	Hay fever.....	3	.63					.02	.00
224-227	99a	Diseases of the teeth and gums.....	56	11.83					1.78	.38
228-231	99b	Other diseases of the mouth and annexa.....	6	1.27					.12	.02
232-236	100	Diseases of the pharynx.....	146	30.84					2.02	.43
238	102	Ulcer of stomach.....	8	1.69			1	.21	.61	.13
239-244	103	Other diseases of stomach (cancer excepted).....	51	10.77	1	.19			.90	.19
245-253	105	Diarrhea and enteritis.....	271	57.24			1	.19	7.61	1.61
254	106	Ankylostomiasis.....	2	.42					.03	.01
255-259	107	Intestinal parasites.....	52	10.98			2	.39	4.41	.93
266	108	Appendicitis.....	21	4.44					2.47	.52
261-263	109	Hernia.....								
264-267	110a	Diseases of the anus and fecal fis- tula.....	6	1.27					.23	.05
268-272	110b	Other diseases of the intestines.....	88	18.59					2.41	.51
275	113	Cirrhosis of liver.....			1	.19	1	.19	.11	.02
276	114	Biliary calculi.....	6	1.27					.38	.06
277-281	115	Other diseases of liver and gall bladder.....	17	3.59					1.68	.35
283-284	117	Simple peritonitis.....								
288	119	Acute nephritis.....								
289-291	120	Bright's disease.....	15	3.17	6	1.10	1	.19	3.47	.73
293-299	122	Other diseases of the kidney and annexa.....	5	1.06					.41	.09
308-306	124	Diseases of the bladder.....	5	1.06					.10	.02
304	124b	Enuresis.....								
307-309	125	Diseases of the urethra, urinary abscess, etc.....	4	.84					.19	.04
310-312	126	Diseases of the prostate.....	4	.84					.26	.05
313-319	127	Diseases of the male genital organs (nonvenereal).....	12	2.53					1.12	.24
322-323	143	Furuncle and carbuncle.....	18	3.80					.37	.08
324-325	144	Acute abscess and cellulitis.....	30	7.60					.77	.16
352-357	146	Diseases of the bones.....	20	4.22					1.50	.34
358-360	147	Diseases of the joints.....	22	4.65	2	.39			2.04	.43
367	147g	Flat foot.....								
372	150	Congenital malformations.....	1	.21					.01	.00
373-374	154	Senility.....								
375	189Aa	Febricula, simple, continued, and other fevers of undetermined causation.....	15	3.17					.20	.04
379	189Ba	Under observation, undiagnosed and unknown.....	8	1.69					.45	.10
380	189Bb	Malingering.....								

ratios per 1,000 of mean strength, for the Army, separately for officers (including American, and grand total, year 1916.—Continued.

Army, enlisted men (including Porto Rican troops and Philippine Scouts).								Army (entire), officers and enlisted men (including Porto Rican troops and Philippine Scouts).							
S. G. O., 105720—A. G. O., 105720.								S. G. O., 110454—A. G. O., 110875.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
5	0.05			1	0.01	0.48	0.00	5	0.05			1	0.01	0.65	0.01
759	7.18					24.17	.23	803	7.27	1	0.01			26.63	.24
91	.86	12	.11			7.39	.07	94	.85	12	.11			7.67	.07
226	2.14	1	.01			11.30	.11	228	2.06	1	.01			11.35	.10
844	7.98					49.82	.47	847	7.67					49.95	.45
1,439	13.61	2	.02			22.48	.21	1,554	14.07	2	.02			24.64	.22
182	1.72	1	.01	1	.01	3.24	.03	193	1.75	1	.01	1	.01	3.31	.03
36	.34	9	.08			4.58	.04	38	.34	9	.08			5.07	.05
3,556	33.64	5	.05			68.88	.65	3,696	33.46	5	.05			71.10	.64
61	.48			8	.08	3.85	.04	56	.51			10	.09	4.12	.04
221	2.09	3	.03	29	.27	16.32	.15	227	2.05	3	.03	33	.30	16.48	.15
346	3.27	8	.08			23.01	.22	355	3.21	8	.08			23.43	.21
12	.11			4	.04	.24	.00	12	.11			4	.04	.24	.00
117	1.11	13	.12			7.54	.07	129	1.17	13	.12			8.07	.07
2	.02	1	.01			.24	.00	3	.03	1	.01			.44	.00
11	.10					.33	.00	11	.10					.33	.00
4	.04					.28	.00	7	.06					.30	.00
650	6.15					10.85	.10	706	6.39					12.64	.11
99	.94					2.43	.02	105	.95					2.55	.02
5,683	53.76	3	.03	2	.02	84.81	.80	5,829	52.77	3	.03			86.83	.78
25	.24					2.65	.03	33	.30	3	.03	3	.03	3.27	.03
1,236	11.69	11	.10			26.20	.25	1,287	11.65	11	.10			27.10	.24
5,157	48.79	4	.04	5	.05	66.03	.62	5,428	49.14	4	.04	6	.05	73.64	.66
61	.58					2.47	.02	61	.55					2.47	.02
135	1.28					2.22	.02	137	1.24					2.25	.02
996	9.42	3	.03	16	.15	71.22	.67	1,048	9.49	3	.03	18	.16	75.63	.68
489	4.63	37	.35	4	.04	48.60	.46	510	4.62	37	.35	4	.04	51.06	.46
92	.87					5.38	.05	98	.89					5.61	.05
3,121	29.52	19	.18	1	.01	44.14	.42	3,209	29.05	19	.18	1	.01	46.55	.42
10	.09	1	.01	1	.01	.86	.01	10	.09	1	.01	2	.02	.97	.01
18	.17					2.14	.02	24	.22			1	.01	2.52	.02
430	4.07	4	.04	4	.04	18.57	.18	447	4.05	4	.04	4	.04	20.25	.18
6	.06			4	.04	4.43	.00	6	.05			4	.04	.43	.00
65	.61			7	.07	2.54	.03	65	.59			7	.06	3.54	.03
69	.65	18	.17	11	.10	12.92	.12	84	.76	18	.17	12	.11	16.39	.15
74	.70	6	.06	2	.02	8.78	.08	79	.72	6	.06	2	.02	9.19	.08
241	2.28	29	.27			10.60	.10	246	2.23	29	.27			10.70	.10
122	1.15	29	.27			6.46	.06	122	1.10	29	.27			6.46	.06
208	1.97					4.07	.04	212	1.92					4.26	.04
16	.15					.57	.01	20	.18					.83	.01
479	4.53	3	.03			16.24	.15	491	4.45	3	.03			17.36	.16
1,633	15.45			1	.01	28.87	.28	1,651	14.91			1	.01	29.23	.26
1,695	16.03	1	.01			46.36	.44	1,731	15.98	1	.01			47.13	.43
253	2.39	11	.10			21.40	.20	273	2.47	11	.10			22.99	.21
407	3.85	39	.37			34.39	.33	429	3.88	39	.37			36.43	.33
408	3.86	139	1.31			37.17	.35	408	3.69	139	1.31			37.17	.34
304	3.44	3	.03			12.13	.11	365	3.30	3	.03			12.14	.11
3	.03					.18	.00	3	.03					.18	.00
628	5.94					15.66	.15	643	5.82					15.86	.14
105	.99	1	.01	5	.05	5.04	.05	113	1.02	1	.01	5	.05	5.49	.07
46	.44					1.97	.02	46	.42					1.97	.02

TABLE 684.—Admissions to sick report, discharges, deaths, and noneffectiveness, with Porto Rico, and Philippine troops)

		Officers, Army.									
		Mean strength.....				S. G. O., 4734—A. G. O., 5155.					
		Admissions.		Retirements.		Deaths.		Noneffective.			
		Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
Serial Nos.		Causes of admission to sick report.									
International classification.											
AFFECTI0NS PRODUCED BY EXTERNAL CAUSES. ¹											
428-434	158-163	Suicides, all.....				4	.78				
435	164	Poisoning by food.....		11	2.32						
436	165a	Venomous bites and stings.....		3	.63						
437	165b	Other poisoning (deleterious gases excepted).....		2	.42						
438	166	Conflagration.....									
439	167	Burns (conflagrations excepted).....		6	1.27						
440	168	Absorption of deleterious gases.....									
441	168a	Suffocation, strangulation.....				1	.19				
442	169	Drowning, accidental.....				1	.19				
443	170	Traumatism by firearms (other than specified).....		4	.84	1	.19				
444	170a	Shot by sentry or guard.....									
445	171	Traumatism by cutting or piercing instruments.....		10	2.11						
446	172	Traumatism by fall.....		95	20.07		2	.39			
447	172	Traumatism in mines and quarries.....									
448	174	Traumatism by machines.....		1	.21						
449	175	Traumatism by other crushing.....		26	5.49		3	.68			
450	176	Injuries by animals.....		26	5.49						
451	177	Starvation.....									
452	178	Effects of excessive cold.....									
453	179	Effects of heat.....		5	1.06						
454	180	Effects of lightning.....									
455	181	Effects of electricity.....									
456-458	182-4	Homicides, all.....				1	.19				
459	185	Fractures, causes not specified.....									
460	186	Other external violence.....		85	17.96						
462-466		Killed or wounded in action.....		5	1.06		2	.39			
462		By bullet.....		5	1.06		2	.39			
463		By shell.....									
464		By sword or bayonet.....									
465		By bolo, kris, etc.....									
466		By other weapon.....									
DISEASES AND INJURIES GROUPED.											
1-19		General diseases.....		496	104.56	4	.78	8	1.55	25.54	5.40
20-59		Epidemic diseases.....		417	88.08			2	.58	12.62	2.65
		Other general diseases.....		78	16.48	4	.78	5	.97	13.02	2.76
60-74		Diseases of the nervous system and organs of special sense.....		205	43.31	16	3.10	1	.19	16.46	3.48
75		Of the nervous system.....		121	25.36	12	2.33	1	.19	11.18	2.36
76		Of the eye and its annexa.....		63	13.31	3	.58			3.82	.81
77-86		Of the ear and its annexa.....		21	4.44	1	.19			1.46	.31
87-96		Diseases of the circulatory system.....		79	16.69	9	1.75	3	.58	6.25	1.32
97-106		Diseases of the respiratory system.....		304	64.22	1	.19	6	1.16	6.57	1.39
107-116		Diseases of the digestive system.....		731	154.42	2	.39	6	1.16	26.04	5.29
117-127		Diseases of the genito-urinary system.....		60	12.67	6	1.16	1	.19	6.37	1.34
128-145		Diseases of the skin and cellular tissue.....		102	21.55			1	.19	3.24	.68
146-149		Diseases of the organs of locomotion.....		112	23.66	2	.39			5.97	1.26
150		Malformations, etc.....		1	.21					.01	.00
151		Diseases, results of old age.....									
152		Ill-defined diseases.....		29	6.13					.71	.15
Total for disease.....		2,118	447.40	40	7.76	26	5.04	96.16	20.31		
External causes.....		290	61.26	5	.97	14	2.72	14.82	3.12		
Total for disease and external causes.....		2,408	508.66	45	8.73	40	7.76	110.98	23.44		

¹ Noneffectiveness for individual external causes not tabulated.

ratios per 1,000 of mean strength, for the Army, separately for officers (including American, and grand total, year 1916—Continued.

Army, enlisted men (including Porto Rican troops and Philippine Scouts).								Army (entire), officers and enlisted men (including Porto Rican troops and Philippine Scouts).							
S. G. O., 105720—A. G. O., 105720.								S. G. O., 110454—A. G. O., 110875.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
11	.10			61	.59			77	.10			65	.59		
250	2.35							261	2.36						
82	.78							85	.77						
57	.54			5	.05			59	.53			5	.05		
2	.02			3	.03			2	.02			3	.03		
362	3.42							368	3.33						
1	.01			2	.02			1	.01			2	.02		
2	.02			1	.01			2	.02			2	.02		
				45	.43							46	.41		
399	3.77	48	.45	24	.23			403	3.65	48	.45	24	.22		
4	.04	2	.02	3	.03			4	.04	2	.02	3	.03		
1,349	12.76	10	.09					1,359	12.30	10	.09				
3,167	29.96	47	.44	11	.10			3,262	29.53	47	.44	13	.12		
1	.01			1	.01			1	.01			1	.01		
66	.62	2	.02					67	.61	2	.02				
906	8.57	34	.32	26	.25			932	8.44	34	.32	29	.26		
1,134	10.73	2	.02	3	.03			1,165	10.59	2	.02	3	.03		
1	.01							1	.01						
21	.20							21	.19						
186	1.76			2	.02			191	1.73			2	.02		
1	.01	1	.01	2	.02			1	.01	1	.01	2	.02		
4	.04			1	.01			4	.04			1	.01		
21	.11			30	.29			12	.11			31	.28		
2	.02							2	.02						
4,932	46.65	25	.24	7	.07			5,017	45.42	25	.24	7	.06		
	.34	4	.04	34	.32			41	.37	4	.04	36	.32		
35	.33	4	.04	34	.32			40	.36	4	.04	36	.32		
1	.01							1	.01						
23,505	222.33	495	4.68	114	1.08	1,126.22	10.65	24,000	217.28	495	4.68	122	1.10	1,151.76	10.39
10,263	96.98	16	.15	28	.26	283.98	2.69	10,670	95.59	16	.15	31	.28	296.50	2.67
13,252	125.35	479	4.53	86	.82	842.25	7.97	13,330	120.68	479	4.53	91	.82	855.27	7.71
3,367	31.86	483	4.57	23	.22	224.53	2.13	3,572	32.34	483	4.57	24	.22	240.99	2.17
1,504	14.23	422	3.99	23	.22	157.43	1.49	1,625	14.71	422	3.99	24	.22	168.61	1.52
1,154	10.92	34	.32			39.91	.39	1,217	11.02	34	.32			43.73	.39
709	6.71	27	.26			27.18	.26	730	6.61	27	.26			28.65	.26
2,314	21.89	86	.81	28	.26	124.92	1.18	2,393	21.66	86	.81	31	.28	131.17	1.18
5,997	56.73	42	.40	44	.42	151.43	1.43	6,301	57.04	42	.40	50	.45	158.00	1.42
18,217	172.32	84	.79	39	.37	390.19	3.69	18,948	171.55	84	.79	45	.41	415.24	3.74
1,209	11.44	60	.57	90	.19	60.04	.57	1,269	11.49	60	.57	21	.19	66.41	.60
5,978	56.55	12	.11	1	.01	154.90	1.47	6,080	55.05	12	.11	2	.02	158.14	1.43
2,757	26.08	211	2.00			144.00	1.36	2,869	25.97	211	2.00			149.97	1.35
364	3.44	3	.03			12.13	.11	365	3.30	3	.03			12.14	.11
3	.03					.18	.00	3	.03					.18	.00
890	9.42	1	.01	5	.05	24.21	.23	919	8.32	1	.01	5	.05	24.93	.22
64,601	611.06	1,477	13.97	274	2.59	2,412.76	22.82	66,719	604.04	1,477	13.97	300	2.71	2,508.92	22.63
12,230	125.14	212	2.01	261	2.47	468.30	4.43	13,520	112.40	212	2.01	275	2.48	483.13	4.36
77,831	736.20	1,689	15.98	535	5.06	2,881.06	27.25	80,239	726.45	1,689	15.98	575	5.19	2,992.05	26.99

TABLE No. 69.—Admissions to sick report, discharges, deaths, and noneffectiveness, with year

Serial Nos.	International classification.	Officers, Army.								
		Mean strength.....	S. G. O., 4,734—A. G. O., 5,155.							
			Admissions.		Retire-ments.		Deaths.		Noneffective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Causes of admission to sick report.										
1	1	Typhoid fever.....	5	1.06			2	0.39	0.61	0.13
2	1a	Paratyphoid fever.....	4	.84					.39	.08
7-11	4	Malaria.....	44	9.29					1.75	.37
7		Estivo-autumnal fever.....	10	2.11					.58	.12
8		Malarial cachexia.....	2	.42					.66	.14
9		Quartan malarial fever.....								
10		Tertian malarial fever.....	27	5.70					.47	.10
11		Undetermined malarial fever.....	5	1.06					.05	.01
12	5	Smallpox and varioloid.....	1	.21					.08	.02
13	5b	Vaccinia.....	1	.21					.00	.01
14	6	Measles.....	1	.21					.03	.00
15	7	Scarlet fever.....								
17	9	Diphtheria.....	2	.42					.05	.01
18	10	Influenza.....	245	51.75			1	.19	4.63	.98
19	12	Asiatic cholera.....								
20	13	Cholera nostras.....	1	.21					.01	.00
21-23	14	Dysentery.....	41	8.66					3.72	.79
21		Bacillary.....	1	.21					.02	.00
22		Entamoebic.....	32	6.76					3.54	.75
23		Unclassified.....	8	1.69					.16	.03
27	18	Erysipelas.....	2	.42					.08	.02
29	19b	Dengue.....	54	11.41					.92	.20
31	19d	German measles.....								
32	19e	Haemoglobinuric fever.....								
34	19g	Mumps.....	5	1.06					.19	.04
37	20	Purulent infection and septicaemia.....	2	.42			1	.19	.07	.02
41	24	Tetanus.....								
42-46	25	Mycoses.....								
48	27	Beriberi.....								
49-57	28-34	Tuberculosis, all.....	13	2.75			2	.39	7.55	1.60
49-51	28	Tuberculosis of lungs.....	11	2.32			1	.19	6.87	1.45
52	29	Miliary tuberculosis, acute.....								
53-57	30-34	Tuberculosis of other organs.....	2	.42			1	.19	.68	.15
58	36	Scoliosis (rickets).....								
59-74	37-38	Veneral diseases, all.....	16	3.38					1.87	.39
59-64	37	Syphilis.....	11	2.32					1.53	.32
65-67	38a	Soft chancre.....								
68-74	38b	Gonococcus infection.....	5	1.06					.34	.07
75-79	39-45	Cancer and other malignant tumors.....	5	1.06			1	.19	1.53	.32
80	46	Benign tumors.....	5	1.06					.12	.03
81-85	47-48	Rheumatism, articular, all.....	15	3.17					1.14	.24
81-82	47	Acute articular rheumatism.....	10	2.11					.73	.15
83-85	48	Chronic articular rheumatism.....	5	1.06					.41	.09
87-88	50	Diabetes.....	1	.21					.11	.02
89	51	Exophthalmic goiter.....							.17	.04
97-100	56	Alcoholism and results.....	17	3.59					.37	.08
101-102	57-58	Chronic occupational poisoning.....								
103-104	59	Other chronic poisoning, including drug habit.....								
105-106	60	Encephalitis.....								
107	61	Simple meningitis.....	1	.21			1	.19	.04	.01
108	61a	Epidemic cerebrospinal meningitis.....								
109	62	Locomotor ataxia.....								
110-115	63	Other diseases of spinal cord.....	2	.42					.11	.02
116	64	Cerebral hemorrhage, apoplexy.....	4	.84					.40	.09
117-119	66	Paralysis without specified cause.....	2	.42					.59	.12
120-126	67-68	Mental alienation.....	11	2.32	3	0.58			2.36	.50
127	69	Epilepsy.....	3	.63	1	.19			.18	.04
129-133	73	Neuralgia and neuritis.....	34	7.18	1	.19			2.52	.53
138-141	75a	Follicular conjunctivitis.....	21	4.44					.45	.10
142	75b	Trachoma.....								
166	77	Pericarditis.....								
167	78	Acute endocarditis.....								
169-174	79	Organic heart disease.....	13	2.75	1	.19	1	.19	1.91	.40
175	80	Angina pectoris.....	1	.21					.19	.04
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.....	9	1.90	7	1.36	2	.39	1.10	.23
178-179	82	Embolism and thrombosis.....							.17	.03

ratios per 1,000 of mean strength, for the Army, officers and American troops, for the 1916.

American troops, Army.								Officers and American troops, Army.							
S. G. O., 105,720—A. G. O., 105,720.								S. G. O., 110,454—A. G. O., 110,875.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
20	0.20			1	0.01	3.54	0.04	25	0.24			3	0.03	4.14	0.04
110	1.11					10.73	.11	114	1.10					11.12	.11
2,253	22.71			1	.01	58.53	.59	2,297	22.10			1	.01	60.29	.61
534	5.38			1	.01	16.57	.17	544	5.23			1	.01	17.15	.17
4	.04					1.30	.01	6	.06					1.96	.02
17	.17					.46	.00	17	.16					.46	.00
1,489	15.01					36.53	.37	1,516	14.59					37.00	.37
209	2.11					3.66	.04	214	2.06					3.71	.04
1	.01					.03	.00	2	.02					.11	.00
547	5.51					6.49	.07	548	5.27					6.49	.07
1,314	13.25	2	0.02	9	.09	56.13	.57	1,315	12.65	2	.02	9	.09	56.16	.57
48	.48			3	.03	4.26	.04	48	.46			3	.03	4.26	.04
37	.37					2.52	.03	39	.38					2.57	.03
2,880	29.04			1	.01	42.67	.43	3,125	30.07			2	.02	47.30	.48
5	.05					.47	.00	5	.05					.47	.00
								1	.01					.01	.00
621	6.26	9	.09	10	.10	44.72	.45	662	6.37	9	.09	10	.10	48.44	.49
52	.52			1	.01	1.71	.02	53	.52			1	.01	1.73	.02
399	4.02	9	.09	8	.08	37.27	.38	431	4.15	9	.09	8	.08	40.80	.41
170	1.71			1	.01	5.74	.06	178	1.71			1	.01	5.90	.07
51	.51			1	.01	2.38	.02	53	.52			1	.01	2.45	.02
903	9.10					13.68	.14	957	9.21					14.60	.15
13	.13					.37	.00	13	.13					.37	.00
289	2.91					12.46	.13	294	2.83					12.65	.13
12	.12			10	.10	.56	.01	14	.14			11	.11	.63	.01
7	.07					.47	.00	7	.07					.47	.00
343	3.46	218	2.20	38	.38	177.36	1.79	356	3.43	218	2.20	40	.38	184.91	1.86
311	3.14	207	2.09	34	.34	108.48	1.10	322	3.10	207	2.09	35	.34	175.35	1.77
3	.03	1	.01	2	.02	.72	.01	3	.03	1	.01	2	.02	.72	.01
29	.29	10	.10	2	.02	8.15	.09	31	.31	10	.10	3	.03	8.84	.09
6	.06	1	.01			.45	.00	6	.06	1	.01			.45	.00
10,251	103.35	159	1.60	13	.13	557.72	5.62	10,267	98.80	159	1.60	13	.12	559.59	5.64
2,119	21.36	73	.74	12	.12	175.65	1.77	2,130	20.50	73	.74	12	.12	177.18	1.79
2,337	23.56					115.89	1.17	2,337	22.49					115.89	1.17
5,795	58.42	86	.87	1	.01	266.19	2.68	5,800	55.81	86	.87	1	.01	266.33	2.69
32	.32	4	.04	13	.13	6.49	.07	37	.36	4	.04	14	.13	8.12	.08
137	1.38	2	.02			5.05	.05	142	1.37	2	.02			5.17	.05
565	5.69	18	.18	1	.01	36.50	.37	580	5.58	18	.18	1	.01	37.64	.38
418	4.21	3	.03	1	.01	25.36	.26	428	4.12	3	.03	1	.01	26.09	.26
147	1.48	15	.15			11.14	.11	152	1.46	15	.15			11.55	.12
16	.16	9	.09	3	.03	2.30	.02	17	.16	9	.09	3	.03	2.41	.02
27	.27	21	.21			5.97	.06	27	.26	21	.21			6.13	.06
1,190	12.00	13	.13	3	.03	20.70	.21	1,207	11.61	13	.13	3	.03	21.08	.21
4	.04	1	.01			.52	.01	4	.04	1	.01			.52	.01
46	.46	3	.03			1.94	.02	46	.44	3	.03			1.94	.04
1	.01			1	.01	.02	.00	1	.01			1	.01	.02	.00
1	.01	1	.01			.13	.00	2	.02	1	.01	1	.01	.17	.00
20	.20	2	.02	9	.09	1.63	.02	20	.19	2	.02	9	.09	1.63	.02
16	.16	5	.05	1	.01	4.07	.04	16	.15	5	.05	1	.01	4.07	.04
6	.06	2	.02			1.12	.01	8	.08	2	.02			1.22	.01
4	.04			4	.04	.02	.00	8	.08			4	.04	.42	.00
32	.32	3	.03	1	.01	2.91	.03	34	.33	3	.03	1	.01	3.50	.04
369	3.72	271	2.72	4	.04	82.44	.83	380	3.66	271	2.73	3	.03	84.80	.85
145	1.46	75	.76			12.67	.13	148	1.42	75	.76			12.85	.13
567	5.72	27	.27	1	.01	31.15	.31	601	5.78	27	.27	1	.01	33.67	.34
494	4.98	3	.03			11.17	.11	515	4.96	3	.03			11.62	.12
13	.13	3	.03			.81	.01	13	.13	3	.03			.81	.01
7	.07	1	.01	1	.01	.59	.01	7	.07	1	.01	1	.01	.59	.01
6	.06	1	.01	2	.02	.74	.01	6	.06	1	.01	2	.02	.74	.01
167	1.68	56	.56	17	.17	19.56	.20	180	1.73	56	.56	18	.17	21.48	.22
9	.09	1	.01	1	.01	.60	.01	10	.10	1	.01	1	.01	.79	.01
19	.19	5	.05	4	.04	2.35	.02	28	.27	5	.05	6	.06	3.45	.03
5	.05			1	.01	.48	.00	5	.05			1	.01	.64	.01

TABLE 69.—Admissions to sick report, discharges, deaths, and noneffectiveness, with the year

Serial Nos.	International classification.	Mean strength.....	Officers, Army.							
			S. G. O., 4,734—A. G. O., 5,155.							
			Admissions.		Retirements.		Deaths.		Noneffective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Causes of admission to sick report.										
181	83b	Hemorrhoids.....	44	9.29					0.52	0.52
183	83d	Varicose veins.....	3	.63					.18	.04
184	83e	Varicocele.....	2	.42					.06	.01
185-187	84	Diseases of the lymphatic system.....	3	.63					.13	.03
193-199	86	Diseases of the nasal fossæ.....	115	24.29					2717	.46
200-202	87	Diseases of the larynx.....	11	2332					.07	.01
203-204	88	Diseases of the thyroid body.....	2	.42					.49	.19
205-206	89-90	Bronchitis.....	140	29.57	1	.19			2727	.48
207	91	Broncho-pneumonia.....	5	1.06			2	.39	.27	.06
208	92	Pneumonia.....	6	1.27			4	.78	.16	.03
209-215	93	Pleurisy.....	9	1.90					.42	.09
216-217	94	Pulmonary congestion and pulmonary apoplexy.....								
219	96	Asthma.....	12	2.53					.53	.11
220	97	Pulmonary emphysema.....	1	.21					.20	.04
221	98a	Hemoptysis.....								
222	98b	Hay fever.....	3	.63					.02	.06
224-227	99a	Diseases of the teeth and gums.....	56	11.83					1.78	.38
228-231	99b	Other diseases of the mouth and annæxa.....	6	1.27					.12	.82
232-236	100	Diseases of the pharynx.....	146	30.84					2.02	.48
238	102	Ulcer of stomach.....	8	1.69			1	.521	.61	.13
239-244	103	Other diseases of stomach (cancer excepted).....	51	10.77	1	.19			.99	.19
245-253	105	Diarrhea and enteris.....	271	57.24			1	.19	7.61	1.61
254	106	Ankylostomiasis.....								
255-259	107	Intestinal parasites.....	2	.42					.03	.61
266	108	Appendicitis.....	52	10.98			2	.39	4.41	.93
261-263	109	Hernia.....	21	4.44					2.47	.52
264-267	110a	Diseases of the anus and fecal fistula.....	6	1.27					.23	.05
268-272	110b	Other diseases of the intestines.....	83	18.56					2.41	.51
275	113	Cirrhosis of liver.....			1	.19	1	.19	.11	.02
276	114	Biliary calculi.....	6	1.27					.38	.08
277-281	115	Other diseases of liver and gall bladder.....	17	3.59					1.68	.35
282-284	117	Simple peritonitis.....								
288	119	Bright's disease.....	15	3.17	6	1.16	1	.19	3547	.73
289-291	120	Other diseases of the kidney and annæxa.....	5	1.06					.41	.09
292-299	122	Diseases of the bladder.....	5	1.06					.10	.02
303-306	124	Enuresis.....								
304	124b	Diseases of the urethra, urinary abscesses, etc.....	4	.84					.19	.04
307-309	125	Diseases of the prostate.....	4	.84					.26	.05
310-312	126	Diseases of the male genital organs (nonvenereal).....	12	2.53					1.19	.24
313-319	127	Furuncle and carbuncle.....	18	3.80					.37	.08
322-323	143	Acute abscess and cellulitis.....	30	7.60					.77	.16
324-325	144	Diseases of the bones.....	20	4.22					1.59	.34
326-327	146	Disease of the joints.....	22	4.65	2	.39			2.04	.43
328-330	147	Flat foot.....								
367	147g	Congenital malformations.....	1	.21					.01	.09
372	150	Senility.....								
373-374	154	Febricula, simple, continued, and other fevers of undetermined causation.....	15	3.17					720	.04
375	189Aa	Under observation, undiagnosed and unknown.....	8	1.69					.45	.510
379	189Ba	Malingering.....								
380	189Bb									
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹										
426-434	155-163	Suicides, all.....					4	.78		
435	164	Poisoning by food.....	11	2.32						
436	165a	Venomous bites and stings.....	3	.63						
437	165b	Other poisoning (deleterious gases excepted).....	2	.42						

¹ Noneffectiveness for individual external causes not tabulated.

ratios per 1,000 of mean strength, for the Army, officers and American troops, for 1916—Continued.

American troops, Army.								Officers and American troops, Army.							
S. G. O., 105,720—A. G. O., 105,720.								S. G. O., 110,454—A. G. O., 110,875.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
750	7.56	1	0.01			23.94	0.24	794	7.64	1	0.01			26.40	0.27
89	1.90	12	.12			7.31	.07	92	.89	12	.12			7.49	.08
225	2.27	1	.01			11.27	.11	227	2.18	1	.01			11.33	.11
810	8.17					48.09	.48	813	7.82					48.21	.49
1,361	13.72	2	.02			21.38	.22	1,476	14.20	2	.02			23.55	.24
178	1.79	1	.01	1	.01	3.16	.03	189	1.82	1	.01	1	.01	3.22	.03
36	.36	9	.09			4.58	.05	38	.37	9	.09			5.07	.05
3,361	33.88	5	.05			64.44	.65	3,501	33.69	5	.05			66.71	.67
49	.49			8	.08	3.73	.04	54	.52			10	.10	4.01	.04
205	2.07	3	.03	28	.28	15.21	.15	211	2.05	3	.03	32	.31	15.40	.16
339	3.39	8	.08			22.36	.23	345	3.32	8	.08			22.78	.23
5	.05			2	.02		.00	5	.05			2	.02		.10
104	1.05	12	.12			6.75	.07	116	1.12	12	.12			7.28	.07
2	.02	1	.01			.24	.00	3	.03	1	.01			.44	.00
10	.10					.27	.00	10	.10			2	.02	.27	.00
4	.04					.28	.00	7	.07					.30	.00
625	6.30					10.47	.11	681	6.59					12.25	.13
95	.96					2.37	.02	101	.97					2.49	.03
5,060	56.46					83.64	.84	5,746	55.30					85.66	.86
25	.25	3	.03	2	.02	2.65	.03	33	.33	3	.03	3	.03	3.27	.03
1,153	11.62	11	.11			25.28	.25	1,204	11.69	11	.11			26.18	.26
4,941	49.81	4	.04	4	.04	63.36	.64	5,212	50.16	4	.04	5	.05	70.97	.72
40	.40					1.94	.02	40	.38					2.04	.02
123	1.24					1.98	.02	125	1.20					2.01	.02
983	9.91	3	.03	16	.16	70.22	.71	1,035	9.90	3	.03	18	.17	74.62	.75
486	4.90	36	.36	4	.04	48.30	.49	507	4.88	36	.36	4	.04	50.77	.51
86	.87					5.14	.05	92	.89					5.37	.05
2,818	28.41	19	.19	1	.01	41.31	.42	2,906	27.96	19	.19	1	.01	43.72	.44
10	.10	1	.01	1	.01	.86	.01	10	.10	1	.01	2	.02	.97	.01
18	.18					2.14	.02	24	.23			1	.01	2.52	.03
419	4.27	3	.03	4	.04	18.13	.18	436	4.20	3	.03	4	.04	19.81	.20
6	.06			4	.04	.43	.00	6	.06			4	.04	.43	.00
61	.61			6	.06	3.40	.03	61	.59			6	.06	3.40	.03
69	.70	18	.18	11	.11	12.92	.13	84	.81	18	.18	12	.12	16.39	.17
73	.74	6	.06	2	.02	8.54	.09	78	.75	6	.06	2	.02	8.94	.09
246	2.42	29	.29			10.57	.11	245	2.36	29	.29			10.67	.11
122	1.23	29	.29			6.46	.07	122	1.17	29	.29			6.46	.07
206	2.08					3.96	.04	210	2.02					4.15	.04
16	.16					.57	.01	20	.19					.83	.01
444	4.48	3	.03			15.24	.15	456	4.39	3	.03			16.36	.16
1,494	15.07					25.99	.26	1,512	14.55					26.36	.26
1,531	15.44					42.15	.42	1,567	15.07					42.92	.43
247	2.49	11	.11			20.77	.21	267	2.57	11	.11			22.36	.23
395	3.98	38	.38			33.28	.34	417	4.01	38	.38			35.33	.36
408	4.11	139	1.40			37.17	.37	408	3.93	139	1.40			37.17	.37
359	3.62	3	.03			11.84	.12	360	3.46	3	.03			11.85	.12
3	.03					.18	.00	3	.03					.18	.00
558	5.63					13.70	.14	573	5.51					13.80	.14
99	1.00	1	.01	5	.05	4.60	.05	107	1.03	1	.01	5	.05	5.05	.05
44	.44					1.96	.02	44	.42					1.96	.02
11	.11			59	.59			11	.10			63	.61		
247	2.49							258	2.48						
73	.74							76	.73						
56	.56			5	.05			58	.56			5	.05		

TABLE NO. 69.—Admissions to sick report, discharges, deaths, and noneffectiveness, with the year

Serial Nos.	International classification.	Officers, Army.							
		S. G. O., 4,734—A. G. O., 5,155.							
		Admissions.		Retirements.		Deaths.		Noneffective.	
		Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
	Mean strength.....	S. G. O., 4,734—A. G. O., 5,155.							
	Causes of admission to sick report.								
	AFFECTIONS PRODUCED BY EXTERNAL CAUSES—continued.								
438	166 Conflagration.....								
439	167 Burns (conflagrations excepted).....	6	1.27						
440	168 Absorption of deleterious gases.....								
441	168a Suffocation, strangulation.....					1	0.19		
442	169 Drowning, accidental.....					1	.19		
443	170 Traumatism by firearms (other than specified).....	4	.84	1	0.19				
444	170a Shot by sentry or guard.....								
445	171 Traumatism by cutting or piercing instruments.....	10	2.11	1	.19				
446	172 Traumatism by fall.....	95	20.07	2	.39	2	.39		
447	173 Traumatism in mines and quarries.....								
448	174 Traumatism by machines.....	1	.21						
449	175 Traumatism by other crushing.....	26	5.49			3	.58		
450	176 Injuries by animals.....	26	5.49						
451	177 Starvation.....								
	Mean strength.....	S. G. O. 4734—A. G. O. 5155.							
452	178 Effects of excessive cold.....								
453	179 Effects of heat.....								
454	180 Effects of lightning.....								
455	181 Effects of electricity.....								
456-458	182-4 Homicides, all.....					1	0.19		
459	185 Fractures, causes not specified.....								
460	186 Other external violence.....	85	17.96	1	0.19				
462-466	Killed or wounded in action.....	5	1.06			2	.39		
462	By bullet.....	5	1.06			2	.39		
463	By shell.....								
464	By sword or bayonet.....								
465	By bolo, kris, etc.....								
466	By other weapon.....								
	DISEASES AND INJURIES GROUPED.								
1-19	General diseases.....	495	104.56			8	1.55	25.54	5.40
20-59	Epidemic diseases.....	417	88.08			3	.53	12.52	2.65
	Other general diseases.....	78	16.48			5	.97	13.02	2.75
60-74	Diseases of the nervous system and organs of special sense.....	205	43.31			1	.19	16.46	3.48
75	Of the nervous system.....	121	25.56			1	.19	11.18	2.36
76	Of the eye and its annexa.....	63	13.31					3.82	.81
77	Of the ear and its annexa.....	21	4.44					1.46	.31
78-85	Diseases of the circulatory system.....	79	16.69			3	.55	6.25	1.32
86-98	Diseases of the respiratory system.....	304	64.22			6	1.16	6.57	1.39
99-118	Diseases of the digestive system.....	731	154.42			6	1.16	25.04	5.29
119-127	Diseases of the genitourinary system.....	60	12.67			1	.19	6.36	1.34
128-145	Diseases of the skin and cellular tissue.....	102	21.55			1	.19	3.24	.68
146-149	Diseases of the organs of locomotion.....	112	23.66					5.97	1.26
150	Malformations, etc.....	1	.21					.01	.00
154	Diseases, results of old age.....								
189	Ill-defined diseases.....	29	6.13					.71	.15
	Total for disease.....	2,118	447.40			26	5.04	96.16	20.31
155-186	External causes.....	290	61.26			14	2.72	14.82	3.13
	Total for disease and external causes.....	2,408	508.66			40	7.74	110.98	23.44

ratios per 1,000 of mean strength, for the Army, officers and American troops, for 1916—Continued.

American troops, Army.								Officers and American troops, Army.							
S. G. O., 105,720—A. G. O., 105,720.								S. G. O., 110,454—A. G. O., 110,875.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
2	0.02			3	0.03			2	0.02			3	0.03		
353	3.56							359	3.48						
1	.01			2	.02			1	.01			2	.02		
2	.02			1	.01			2	.02			2	.02		
				45	.45							46	.46		
387	3.90	48	0.48	24	.24			391	3.76	48	0.48	24	.23		
4	.04	2	.02	3	.03			4	.04	2	.02	3	.03		
1,255	12.65	10	.10					1,265	12.17	10	.10				
3,064	30.89	44	.44	11	.11			3,159	30.40	44	.44	13	.12		
1	.01			1	.01			1	.01			1	.01		
62	.63	2	.02					63	.61	2	.02				
880	8.87	34	.34	26	.26			906	8.72	34	.34	29	.28		
1,129	11.38	2	.02	3	.03			1,155	11.11	2	.02	3	.03		
S. G. O. 105720—A. G. O. 99186.								S. G. O. 103920—A. G. O. 103491.							
21	0.21							21	0.20						
171	1.72			2	0.02			176	1.69			2	0.02		
1	.01	1	0.01	2	.02			1	.01	1	0.01	2	.02		
3	.03			1	.01			3	.03			1	.01		
11	.11			29	.29			11	.11			30	.29		
2	.02							2	.02						
4,721	47.60	25	.25	7	.07			4,806	46.25	25	.25	7	.07		
36	.36	4	.04	34	.34			41	.39	4	.04	36	.35		
35	.35	4	.04	34	.34			40	.39	4	.04	36	.35		
1	.01							1	.01						
22,382	225.66	464	4.68	108	1.09	1,084.66	10.93	22,877	220.14	464	4.68	116	1.11	1,110.20	11.19
9,451	95.28	11	.11	26	.26	263.87	2.66	9,868	94.77	11	.11	29	.28	276.40	2.79
12,931	130.37	453	4.57	82	.83	820.78	8.28	13,009	125.19	453	4.57	87	.84	833.80	8.41
3,189	32.16	473	4.76	21	.21	219.39	2.22	3,394	32.65	473	4.76	22	.31	235.85	2.38
1,463	14.75	416	4.19	21	.21	155.33	1.57	1,584	15.24	416	4.19	22	.21	166.52	1.63
1,043	10.52	32	.32			37.60	.38	1,106	10.64	32	.32			41.41	.42
683	6.89	25	.25			26.47	.27	704	6.77	25	.25			27.92	.28
2,253	22.71	85	.86	26	.26	122.40	1.23	2,332	22.44	85	.86	29	.28	128.66	1.30
5,668	57.14	41	.41	41	.41	143.03	1.44	5,972	57.47	41	.41	47	.45	149.60	1.51
17,437	175.86	82	.83	38	.38	379.47	3.83	18,168	174.83	82	.83	44	.42	404.52	4.08
1,165	11.75	60	.60	19	.19	58.51	.59	1,225	117.88	60	.60	20	.19	64.87	.65
5,480	55.25	11	.11			139.96	1.41	5,582	53.72	11	.11	1	.01	143.20	1.44
2,679	27.01	210	2.12			140.41	1.42	2,791	26.86	210	2.12			146.38	1.48
359	3.62	3	.03			11.84	.12	360	3.46	3	.03			11.85	.12
3	.03					.18	.00	3	.03					.18	.00
803	8.10	1	.01	5	.05	21.69	.22	832	8.01	1	.01	5	.05	22.40	.23
61,418	619.22	1,430	14.42	258	2.60	2,321.54	23.41	63,536	611.39	1,430	14.42	284	2.73	2,417.70	24.38
12,732	128.36	209	2.11	258	2.60	453.98	4.58	13,022	125.31	209	2.11	272	2.61	468.80	4.73
74,150	747.59	1,639	16.52	516	5.21	2,775.52	27.98	76,558	736.70	1,639	16.52	556	5.34	2,886.50	29.19

TABLE No. 70.—Admissions to sick report, discharges, deaths, and noneffectiveness, with colored,

Serial Nos.	International classification.	Causes of admission to sick report.	Army, American troops, white and colored.							
			S. G. O., 99,186—A. G. O., 99,186.							
			Admissions.		Discharges.		Deaths.		Non-effective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
1	1	Typhoid fever.....	20	0.20			1	0.01	3.54	0.04
2	1a	Paratyphoid fever.....	110	1.11					10.73	.11
7-11	4	Malaria.....	2,253	22.71			1	.01	58.53	.59
7		Fativo-autumnal fever.....	534	5.38			1	.01	16.57	.17
8		Malarial cachexia.....	4	.04					1.20	.01
9		Quartan malarial fever.....	17	.17					.46	.00
10		Tertian malarial fever.....	1,489	15.01					36.53	.37
11		Undetermined malarial fever.....	209	2.11					3.66	.04
12	5	Smallpox and varioloid.....	1	.01					.03	.00
13	5b	Vaccinia.....	547	5.51					6.49	.07
14	6	Measles.....	1,314	13.25	2	.02	9	.09	56.13	.57
15	7	Scarlet fever.....	48	.48			3	.03	4.26	.04
17	9	Diphtheria.....	37	.37					2.52	.03
18	10	Influenza.....	2,880	29.04			1	.01	42.67	.43
19	12	Asiatic cholera.....	5	.05					.47	.00
21-23	14	Dysentery.....	621	6.26	9	.09	10	.10	44.72	.45
21		Bacillary.....	52	.52			1	.01	1.71	.02
22		Entamoebic.....	399	4.02	9	.09	8	.08	37.26	.38
23		Unclassified.....	170	1.71			1	.01	5.74	.06
27	18	Erysipelas.....	51	.51			1	.01	2.38	.02
29	10b	Dengue.....	903	9.10					13.68	.14
31	19d	German measles.....	13	.13					.37	.00
34	19g	Mumps.....	289	2.91					12.46	.13
37	20	Purulent infection and septicemia.....	12	.12			10	.10	.56	.01
42-46	25	Mycoses.....	7	.07					.47	.00
49-57	28-34	Tuberculosis, all.....	343	3.46	218	2.20	38	.38	177.36	1.79
49-51	28	Tuberculosis of lungs.....	311	3.14	207	2.09	34	.34	168.48	1.70
52	29	Miliary tuberculosis, acute.....	3	.03	1	.01	2	.02	.72	.01
53-57	30-34	Tuberculosis of other organs.....	29	.29	10	.10	2	.02	8.15	.09
58	36	Scoliosis (rickets).....	6	.06	1	.01			.45	.00
59-74	37-38	Venerical diseases, all.....	10,251	103.35	159	1.60	13	.13	557.72	5.62
59-64	37	Syphilis.....	2,119	21.36	73	.74	12	.12	175.65	1.77
184	83e	Varicelle.....	225	2.27	1	.01			11.27	.11
185-187	84	Diseases of the lymphatic system.....	810	8.17					48.09	.48
193-199	86	Diseases of the nasal fossae.....	1,361	13.72	2	.02			21.38	.22
200-202	87	Diseases of the larynx.....	178	1.79	1	.01	1	.01	3.16	.03
203-204	88	Diseases of the thyroid body.....	36	.36	9	.09			4.58	.05
205-206	89-90	Bronchitis.....	3,361	33.88	5	.05			64.44	.65
207	91	Broncho-pneumonia.....	49	.49			8	.08	3.74	.04
208	92	Pneumonia.....	205	2.07	3	.03	28	.28	15.24	.15
209-215	93	Pleurisy.....	336	3.39	8	.08			22.36	.23
216-217	94	Pulmonary congestion and pulmonary apoplexy.....	5	.05			2	.02	.10	.00
219	96	Asthma.....	104	1.05	12	.12			6.75	.07
220	97	Pulmonary emphysema.....	2	.02	1	.01			.24	.00
221	98a	Hæmoptysis.....	10	.10					.27	.00
222	98b	Hay fever.....	4	.04					.28	.00
224-227	99a	Diseases of the teeth and gums.....	625	6.30					10.47	.11
228-231	99b	Other diseases of the mouth and annexa.....	95	.96					2.37	.02
232-236	100	Diseases of the pharynx.....	5,600	56.46					83.64	.84
238	102	Ulcer of stomach.....	25	.25	3	.03	2	.02	2.65	.03
239-244	103	Other diseases of stomach (cancer excepted).....	1,153	11.62	11	.11			25.28	.25
245-253	105	Diarrhea and enteritis.....	4,941	49.81	4	.04	4	.04	63.36	.64
254	106	Ankylostomiasis.....	40	.40					1.94	.02
255-259	107	Intestinal parasites.....	123	1.24					1.98	.02
260	108	Appendicitis.....	983	9.91	3	.03	16	.16	70.22	.71
261-263	109	Hernia.....	486	4.90	36	.36	4	.04	48.30	.49
264-267	110a	Diseases of the anus and fecal fistula.....	86	.87					5.14	.05
268-272	110b	Other diseases of the intestines.....	2,818	28.41	19	.19	1	.01	41.31	.42
275	113	Cirrhosis of liver.....	10	.10	1	.01	1	.01	.86	.01
276	114	Biliary calculi.....	18	.18					2.14	.02
277-281	115	Other diseases of liver and gall bladder.....	419	4.27	3	.03	4	.04	18.13	.18
283-284	117	Simple peritonitis.....	6	.06			4	.04	.43	.00
288	119	Acute nephritis.....	61	.61			6	.06	3.40	.03
289-291	120	Bright's disease.....	69	.70	18	.18	11	.11	12.02	.13

ratios per 1,000 of mean strength, for the Army, American troops, enlisted men, white and year 1916.

Army, American troops, white.								Army, American troops, colored.							
S. G. O., 93,625—A. G. O., 93,625.								S. G. O., 5,561—A. G. O., 5,561.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
20	0.21			1	0.01	3.54	0.05							0.31	0.06
106	1.13					10.42	.16							2.80	.50
2,148	22.94			1	.01	55.73	.84	105	18.88					1.10	.20
497	5.31			1	.01	15.47	.23	37	6.65						
4	.04					1.30	.02								
17	.16					1.46	.02								
1,424	15.21					34.87	.53	65	11.60					1.66	.30
206	2.20					3.63	.05	3	.54					.04	.01
545	5.82					6.33	.10	1	.18					.03	.00
1,309	13.98	2	0.02	9	.10	55.95	.84	2	.36					.16	.03
48	.51			3	.03	4.26	.06	5	.90					.18	.03
31	.33					1.70	.02	6	1.08					.82	.15
2,834	30.27			1	.01	41.79	.63	46	8.27					.89	.16
5	.05					1.47	.01								
578	6.17	9	.10	9	.10	41.12	.62	43	7.73			1.18		3.60	.65
51	.54			1	.01	1.64	.02	1	.18					.07	.01
367	3.92	9	.10	7	.07	34.01	.51	32	5.75			1	.18	3.25	.58
160	1.71			1	.01	5.47	.08	10	1.80					.27	.05
46	.49			1	.01	2.11	.03	5	.90					.27	.05
898	9.50					13.55	.20	5	.90					.13	.02
13	.14					.37	.01								
285	3.04					12.33	.19	4	.72					.13	.02
12	.13			10	.10	.56	.01								
7	.07					.47	.01								
319	3.41	186	1.99	30	.32	159.19	2.40	24	4.32	32	5.75	81.44		18.17	3.27
291	3.11	175	1.87	27	.29	150.73	2.27	20	3.60	32	5.75	71.26		17.75	3.19
3	.03	1	.01	2	.02	.72	.01								
25	.26	10	.11	1	.01	7.73	.12	4	.72			1	.18	.42	.08
6	.06	1	.01			.45	.01								
9,433	100.75	134	1.43	12	.13	510.57	7.70	818	147.10	25	4.50	1	.18	47.15	8.48
1,970	21.04	63	.67	11	.12	160.10	2.41	149	26.79	10	1.80	1	.18	15.54	2.80
220	2.35	1	.01			11.14	.17	5	.90					.13	.02
787	8.41					46.53	.70	23	4.14					1.56	.28
1,337	14.28	2	.02			20.92	.32	24	4.32					.46	.08
177	1.89	1	.01	1	.01	3.15	.05	1	.18					.01	.00
36	.38	9	.10			4.58	.07								
3,245	34.66	5	.05			62.16	.94	116	20.86					2.28	.41
49	.52			8	.09	3.74	.06								
191	2.04	3	.03	26	.28	14.01	.21	14	2.52			2	.36	1.23	.22
310	3.31	8	.09			20.64	.31	20	4.68					1.72	.31
5	.05			2	.02	.10	.00								
99	1.06	12	.13			6.64	.10	5	.90					.11	.02
2	.02	1	.01			.24	.00								
10	.11					.27	.00								
4	.04					.28	.00								
579	6.18					9.67	.15	46	8.27					.80	.14
90	.96					2.30	.03	5	.90					.08	.01
5,280	56.40					78.43	1.18	320	57.51					5.21	.94
24	.26	3	.03	2	.02	2.57	.04	1	.18					.08	.01
1,086	11.60	11	.12			24.13	.36	67	12.05					1.15	.21
4,587	49.00	4	.04	4	.04	60.20	.91	354	63.66					3.15	.57
39	.42					1.93	.03	1	.18					.01	.00
121	1.29					1.96	.03	2	.36					.02	.00
949	10.14	3	.03	14	.15	67.67	1.02	34	6.11			2	.36	2.55	.46
465	4.97	34	.36	4	.04	45.47	.69	21	3.78	2	.36			2.83	.51
82	.88					4.90	.07	4	.72					.24	.04
2,647	28.28	18	.19	1	.01	39.47	.60	171	30.75	1	.18			1.85	.33
10	.11	1	.01			.88	.01					1	.18		
17	.18					2.01	.03	1	.18					.13	.02
407	4.35	3	.03	4	.04	17.63	.27	12	2.16					.51	.09
5	.05			4	.04	.41	.01	1	.18					.01	.00
51	.54			5	.05	2.93	.04	10	1.80			1	.18	.47	.08
60	.70	17	.18	9	.10	12.22	.18	3	.54	1	.18	2	.36	.70	.13

TABLE NO. 70.—Admissions to sick report, discharges, deaths, and noneffectiveness, with colored, year

Serial Nos.	International classification.	Causes of admission to sick report.	Army, American troops, white and colored.							
			S. G. O., 99,186—A. G. O., 99,186.							
			Admissions.		Discharges.		Deaths.		Non-effective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
293-299	122	Other diseases of the kidney and annexa.....	73	0.74	6	0.06	2	0.02	8.54	0.09
65-67	38a	Soft chancre.....	2,337	23.58					115.89	1.17
68-74	38b	Gonococcus infection.....	5,795	58.42	86	.87	1	.01	266.19	2.68
75-79	39-45	Cancer and other malignant tumors.....	32	.32	4	.04	13	.13	6.49	.07
80	46	Benign tumors.....	137	1.38	2	.02			5.05	.05
81-85	47-48	Rheumatism, articular, all.....	565	5.70	18	.18	1	.01	36.50	.37
81-82	47	Acute articular rheumatism.....	418	4.21	3	.03	1	.01	25.36	.26
83-85	48	Chronic articular rheumatism.....	147	1.48	15	.15			11.14	.11
87-88	50	Diabetes.....	16	.16	9	.09	3	.03	2.30	.02
89	51	Exophthalmic goiter.....	27	.27	21	.21			5.97	.06
97-100	56	Alcoholism and results.....	1,190	12.00	13	.13	3	.03	20.70	.21
101-102	57-58	Chronic occupational poisoning.....	4	.04	1	.01			.52	.01
103-104	59	Other chronic poisoning, including drug habit.....	46	.46	3	.03			1.94	.02
105-106	60	Encephalitis.....	1	.01			1	.01	.02	.00
107	61	Simple meningitis.....	1	.01	1	.01			.13	.00
108	61a	Epidemic cerebrospinal meningitis.....	20	.20	2	.02	9	.09	1.63	.02
109	62	Locomotor ataxia.....	16	.16	5	.05	1	.01	4.07	.04
110-115	63	Other diseases of spinal cord.....	6	.06	2	.02			1.12	.01
116	64	Cerebral hemorrhage, apoplexy.....	4	.04			4	.04	.02	.00
117-119	66	Paralysis without specified cause.....	32	.32	3	.03	1	.01	2.91	.03
120-126	67-68	Mental alienation.....	369	3.72	271	2.72	4	.04	82.44	.83
127	69	Epilepsy.....	145	1.46	75	.76			12.67	.13
129-133	73	Neuralgia and neuritis.....	567	5.72	27	.27	1	.01	31.15	.31
134-141	75a	Follicular conjunctivitis.....	494	4.98	3	.03			11.17	.11
142	75b	Trachoma.....	13	.13	3	.03			.81	.01
146	77	Pericarditis.....	7	.07	1	.01	1	.01	.59	.01
167	78	Acute endocarditis.....	6	.06	1	.01	2	.02	.74	.01
169-174	79	Organic heart disease.....	167	1.68	56	.56	17	.17	19.56	.20
175	80	Angina pectoris.....	9	.09	1	.01	1	.01	.60	.01
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.....	19	.19	5	.05	4	.04	2.35	.02
178-179	82	Embolism and thrombosis.....	5	.05			1	.01	.48	.00
181	83b	Hemorrhoids.....	750	7.56	1	.01			23.04	.24
183	83d	Varicose veins.....	89	.90	12	.12			7.31	.07
203-306	124	Diseases of the bladder.....	240	2.42	29	.29			10.57	.11
304	124b	Enuresis.....	122	1.23	29	.29			6.46	.07
307-309	125	Diseases of the urethra, urinary abscess, etc.....	206	2.08					3.96	.04
310-312	126	Diseases of the prostate.....	16	.16					.57	.01
313-319	127	Diseases of the male genital organs (nonvenereal).....	444	4.48	3	.03			15.24	.15
322-323	143	Furuncle and carbuncle.....	1,494	15.07					25.99	.26
324-325	144	Acute abscess and cellulitis.....	1,531	15.44					42.15	.42
352-357	146	Diseases of the bones.....	247	2.49	11	.11			20.77	.21
358-360	147	Diseases of the joints.....	395	3.98	38	.38			33.28	.34
367	147g	Flat foot.....	408	4.11	139	1.40			37.17	.37
372	150	Congenital malformations.....	359	3.62	3	.03			11.84	.12
373-374	154	Senility.....	3	.03					.18	.00
375	189Aa	Febriola, simple continued, and other fevers of undetermined causation.....	558	5.63					13.70	.14
379	189Ba	Under observation, undiagnosed and unknown.....	99	1.00	1	.01	5	.05	4.60	.05
380	189Bb	Malingering.....	44	.44					1.96	.02
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹										
426-434	155-163	Suicides, all.....	11	.11			50	.50		
435	164	Poisoning by food.....	247	2.49						
436	165a	Venomous bites and stings.....	73	.74						
437	165b	Other poisoning (deleterious gases excepted).....	56	.56			5	.05		
438	166	Conflagration.....	2	.02			3	.03		

¹ Noneffectiveness for individual external causes not tabulated.

ratios per 1,000 of mean strength, for the Army, American troops, enlisted men, white and 1916—Continued.

Army, American troops, white.								Army, American troops, colored.							
S. G. O., 93,625—A. G. O., 93,625.								S. G. O., 5,561—A. G. O., 5,561.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
72	0.77	6	0.06	2	0.02	8.32	0.13	1	0.18					0.22	0.04
2,177	23.25					105.56	1.59	160	28.77					10.33	1.86
5,286	56.46	71	.76	1	.01	244.91	3.69	509	91.53	15	2.70			21.28	3.83
31	.33	4	.04	13	.14	6.27	.09	1	.18					.22	.04
134	1.43	1	.01			4.84	.07	3	.54	1	.18			.21	.04
539	5.76	15	.16	1	.01	33.02	.50	26	4.68	3	.54			3.48	.63
398	4.25	2	.02	1	.01	22.69	.34	20	3.60	1	.18			2.67	.48
141	1.51	13	.14			10.33	.16	6	1.08	2	.36			.81	.14
15	.16	8	.09	3	.03	2.10	.03	1	.18	1	.18			.19	.03
26	.28	20	.21			5.60	.08	1	.18	1	.18			.37	.07
1,160	12.39	12	.13	3	.03	20.14	.31	30	5.39	1	.18			.56	.10
4	.04	1	.01			.52	.01								
35	.37	3	.03			1.79	.03	11	1.98					.15	.03
1	.01			1	.01	.02	.00								
1	.01	1	.01			.13	.00								
20	.21	2	.02	9	.10	1.63	.02								
16	.17	5	.05	1	.01	4.07	.06								
6	.06	2	.02			1.12	.02								
4	.04			4	.04	.02	.00								
31	.33	2	.02	1	.01	2.84	.04	1	.18	1	.18			.07	.01
346	3.70	258	2.76	4	.04	76.46	1.15	23	4.14	13	2.34			5.98	1.08
143	1.53	75	.80			12.50	.19	2	.36					.17	.03
546	5.83	27	.29	1	.01	29.72	.45	21	3.78					1.43	.26
470	5.02	3	.03			10.56	.16	24	4.32					.61	.11
13	.14	3	.03			.81	.01								
7	.07	1	.01	1	.01	.59	.01								
5	.05	1	.01	2	.02	.64	.01	1	.18					.09	.02
153	1.63	52	.56	17	.18	16.43	.25	14	2.52	4	.72			3.13	.56
9	.10	1	.01	1	.01	.60	.01								
18	.19	5	.05	4	.04	1.92	.03	1	.18					.43	.08
5	.05			1	.01	.48	.01								
686	7.33	1	.01			21.16	.32	64	11.51					2.78	.50
88	.94	12	.13			7.15	.11	1	.18					.16	.03
221	2.36	26	.28			9.63	.15	19	3.42	3	.54			.95	.17
108	1.15	26	.28			5.95	.09	14	2.52	3	.54			.51	.09
180	1.92					3.53	.05	26	4.68					.43	.08
16	.17					.57	.01								
398	4.25	2	.02			13.04	.20	46	8.27	1	.18			2.20	.40
1,464	15.64					25.36	.38	30	5.39					.64	.11
1,469	15.69					39.65	.60	62	11.14					2.50	.45
236	2.52	9	.10			18.90	.29	11	1.98	2	.36			1.86	.33
360	3.85	34	.36			30.06	.45	35	6.29	4	.72			3.22	.58
383	4.09	131	1.40			35.10	.53	25	4.50	8	1.44			2.07	.37
338	3.61	3	.03			11.36	.17	21	3.78					.48	.09
2	.01					.17	.00	1	.18					.01	.00
531	5.67					12.84	.19	27	4.86					.86	.15
89	.95	1	.01	4	.04	3.97	.06	10	1.80			1	.18	.62	.11
38	.41					1.77	.03	6	1.08					.19	.03
11	.12			57	.61							2	.36		
170	1.82							77	13.85						
69	.74							4	.72						
53	.57			5	.05			3	.54						
2	.02			3	.03										

TABLE NO. 70.—Admissions to sick report, discharges, deaths, and noneffectiveness, with colored, year

Serial Nos.	International classification.		Army, American troops, white and colored.								
		Mean strength.....	S. G. O., 99,186—A. G. O., 99,186.								
		Causes of admission to sick report.	Admissions.		Discharges.		Deaths.		Non-effective.		
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	
		AFFECTIONS PRODUCED BY EXTERNAL CAUSES—continued.									
439	167	Burns (conflagrations excepted).....	353	3.56							
440	168	Absorption of deleterious gases.....	1	.01			2	0.02			
441	168a	Suffocation, strangulation.....	2	.02			1	.01			
442	169	Drowning, accidental.....					45	.45			
443	170	Traumatism by firearms (other than specified).....	387	3.90	48	0.48	24	.24			
444	170a	Shot by sentry or guard.....	4	.04	2	.02	3	.03			
445	171	Traumatism by cutting or piercing instruments.....	1,255	12.65	10	.10					
446	172	Traumatism by fall.....	3,064	30.89	44	.44	11	.11			
447	173	Traumatism in mines and quarries.....	1	.01			1	.01			
448	174	Traumatism by machines.....	62	.63	2	.02					
449	175	Traumatism by other crushing.....	880	8.87	34	.34	26	.26			
450	176	Injuries by animals.....	1,129	11.38	2	.02	3	.03			
451	177	Starvation.....									
452	178	Effects of excessive cold.....	21	.21							
453	179	Effects of heat.....	171	1.72			2	.02			
454	180	Effects of lightning.....	1	.01	1	.01	2	.02			
455	181	Effects of electricity.....	3	.03			1	.01			
456-458	182-4	Homicides, all.....	11	.11			29	.29			
459	185	Fractures, causes not specified.....	2	.02							
460	186	Other external violence.....	4,721	47.60	25	.25	7	.07			
462-466		Killed or wounded in action.....	36	.36	4	.04	34	.34			
462		By bullet.....	35	.35	4	.04	34	.34			
463		By shell.....									
464		By sword or bayonet.....									
465		By bolo, kris, etc.....									
466		By other weapon.....	1	.01							
		DISEASES AND INJURIES GROUPED.									
		General diseases.....	22,382	225.66	464	4.68	108	1.09	1064.66	10.98	
1-19		Epidemic diseases.....	9,451	95.28	11	.11	26	.26	263.87	2.66	
20-59		Other general diseases.....	12,931	130.37	453	4.57	82	.83	820.78	8.28	
		Diseases of the nervous system and organs of special sense.....	3,189	32.16	473	4.76	21	.21	219.39	2.22	
60-74		Of the nervous system.....	1,463	14.75	416	4.19	21	.21	155.33	1.57	
75		Of the eye and its annexa.....	1,043	10.52	32	.32			37.60	.38	
76		Of the ear and its annexa.....	683	6.89	25	.25			26.16	.27	
77-85		Diseases of the circulatory system.....	2,253	22.71	85	.86	26	.26	122.40	1.23	
86-98		Diseases of the respiratory system.....	5,668	57.14	41	.41	41	.41	143.03	1.44	
99-118		Diseases of the digestive system.....	17,437	175.80	82	.83	38	.38	379.47	3.83	
119-127		Diseases of the genito-urinary system.....	1,165	11.75	60	.60	19	.19	58.50	.59	
142-145		Diseases of the skin and cellular tissue.....	5,480	55.25	11	.11			139.96	1.41	
146-149		Diseases of the organs of locomotion.....	2,679	27.01	210	2.12			140.41	1.42	
150		Malformations, etc.....	359	3.62	3	.03			11.84	.12	
154		Diseases, results of old age.....	3	.03					.18	.00	
189		Ill-defined diseases.....	803	8.10	1	.01	5	.05	21.69	.22	
		Total for disease.....	61,418	619.22	1,430	14.42	258	2.60	2321.54	23.41	
155-186		External causes.....	12,732	128.36	209	2.11	258	2.60	453.98	4.58	
		Total for disease and external causes.....	74,150	747.59	1,639	16.52	516	5.20	2775.52	27.98	

ratios per 1,000 of mean strength, for the Army, American troops, enlisted men, white and 1916—Continued.

Army, American troops, white.								Army, American troops, colored.							
S. G. O., 93,626—A. G. O., 93,626.								S. G. O., 5,561—A. G. O., 5,561.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
344	3.67							9	1.62						
1	.01			2	0.02										
2	.02			1	.01										
				44	.47							10	1.18		
363	3.88	44	0.47	22	.23			24	4.32	4	0.72	2	.36		
4	.04	2	.02	3	.03										
1,201	12.83	9	.10					54	9.71	1	.18				
2,916	31.15	38	.41	11	.12			148	26.61	6	1.08				
1	.01			1	.01										
58	.62	1	.01					4	.72	1	.18				
824	8.80	34	.36	25	.27			56	10.07			1	.18		
1,036	11.07	2	.02	3	.03			93	16.72						
19	.20							2	.36						
161	1.72			2	.02			10	1.80						
1	.01	1	.01	2	.02			1	.18						
2	.02			1	.01										
11	.12			21	.22							8	1.44		
2	.02														
4,428	47.30	22	.24	7	.07			293	52.60	3	.54				
28	.30	2	.02	24	.26			8	1.44	2	.36	10	1.80		
28	.30	2	.02	24	.26			7	1.26	2	.36	10	1.80		
								1	.18						
21,202	226.46	400	4.27	98	1.05	1,004.18	15.15	1,180	212.19	64	11.51	10	1.80	80.48	14.47
9,204	98.32	11	.12	25	.27	264.19	3.83	247	44.42			1	.18	9.69	1.74
11,998	128.15	389	4.15	73	.78	749.99	11.31	933	167.78	64	11.51	9	1.62	70.80	12.73
3,061	32.70	457	4.88	21	.22	206.99	3.12	128	23.02	16	2.88			12.39	2.23
1,405	15.01	401	4.28	21	.22	146.38	2.21	58	10.43	15	2.70			8.96	1.61
998	10.66	31	.33			35.41	.53	45	8.09	1	.18			2.19	.39
658	7.03	25	.27			25.21	.38	25	4.50					1.25	.23
2,136	22.81	81	.87	26	.28	114.05	1.72	117	21.04	4	.72			8.36	1.50
5,481	58.55	41	.44	39	.42	137.19	2.07	187	33.63			2	.36	5.84	1.05
16,397	175.16	79	.84	35	.37	360.85	5.44	1,040	187.02	3	.54	3	.54	18.62	3.35
1,058	11.30	55	.59	16	.17	53.07	.80	107	19.24	5	.90	3	.54	5.44	.98
5,298	56.60	11	.12			134.42	2.03	182	32.73					5.54	1.00
2,516	26.88	196	2.09			130.71	1.97	163	29.31	14	2.52			9.70	1.74
338	3.61	3	.03			11.36	.17	21	3.78					.48	.09
2	.01					.17	.00	1	.18					.01	.00
756	8.08	1	.01	4	.04	19.98	.30	47	8.45			1	.18	1.70	.31
58,245	622.11	1,324	14.14	239	2.55	2,172.97	32.77	3,173	570.58	106	19.06	19	3.42	148.57	26.72
11,935	127.48	192	2.05	234	2.50	424.42	6.40	797	143.32	17	3.06	24	4.32	29.56	5.32
70,180	749.50	1,516	16.19	473	5.05	2,597.39	39.17	3,970	713.90	123	22.12	43	7.73	178.13	32.08

TABLE No. 701.—Admissions to sick report, discharges, deaths, and noneffectiveness, with officers and enlisted men, Regulars and National Guard—officers and enlisted

Serial Nos.	International classification.	The Army (entire), officers and enlisted men, including National Guard.								
		Mean strength.....		176,382						
		Causes of admission to sick report.		Admissions, Discharges.		Deaths. Noneffective.				
				Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
1	1	Typhoid fever.....	96	0.54	1	0.01	5	0.03	12.60	0.07
2	1a	Paratyphoid fever.....	410	2.32			4	.02	39.67	.22
7-11	4	Malaria.....	4,685	26.56			2	.01	110.24	.62
7		Estivo-autumnal fever.....	853	4.82			2	.01	28.24	.16
8		Malarial cachexia.....	11	.06					2.19	.01
9		Quartan malarial fever.....	24	.14					.57	.00
10		Tertian malarial fever.....	2,934	16.59					60.33	.35
11		Undetermined malarial fever.....	863	4.88					9.91	.06
12	5	Smallpox and varioloid.....	20	.11			1	.01	1.39	.01
13	5b	Vaccinia.....	2,125	12.02					18.08	.10
14	6	Measles.....	2,168	12.24	2	.01	18	.10	83.44	.47
15	7	Scarlet fever.....	77	.44			4	.02	6.14	.03
17	9	Diphtheria.....	90	.51			1	.01	5.28	.03
18	10	Influenza.....	6,176	34.96			2	.01	80.46	.46
19	12	Asiatic cholera.....	7	.04			1	.01	.60	.00
20	13	Cholera nostras.....	3	.02					.02	.00
21-23	14	Dysentery.....	1,066	6.03	10	.06	16	.09	61.88	.35
21		Bacillary.....	116	.66			2	.01	3.94	.02
22		Entamoebic.....	538	3.04	10	.06	9	.05	47.61	.27
23		Unclassified.....	412	2.33			5	.03	10.33	.06
27	18	Erysipelas.....	69	.39			2	.01	2.96	.02
29	19b	Dengue.....	1,795	10.15					25.99	.15
31	19d	German measles.....	17	.10					.44	.00
32	19e	Haemoglobinuric fever.....	456	2.58						.10
34	19g	Mumps.....	38	.21			13	.07	1.28	.01
37	20	Purulent infection and septicemia.....	2	.01					.17	.00
41	24	Tetanus.....	8	.05					.40	.00
42-46	25	Mycoses.....	2	.01					.40	.00
48	27	Beriberi.....	2	.01					.40	.00
49-57	28-34	Tuberculosis, all.....	652	3.69	309	1.75	47	.27	204.57	1.16
49-51	28	Tuberculosis of lungs.....	596	3.37	295	1.67	39	.22	193.86	1.10
52	29	Miliary tuberculosis, acute.....	5	.03	4	.02	4	.02	.90	.01
53-57	30-34	Tuberculosis of other organs.....	51	.28	10	.07	4	.02	9.82	.05
58	36	Scoliosis (rickets).....	11	.06	3	.02			.71	.00
59-74	37-38	Veneral diseases, all.....	15,871	89.78	265	1.50	15	.08	752.33	4.26
59-64	37	Syphilis.....	2,850	16.12	105	.59	13	.07	217.43	1.23
65-67	38a	Soft chancre.....	3,390	19.17	2	.01			153.52	.87
68-74	38b	Gonococcus infection.....	9,631	54.48	158	.89	2	.01	381.37	2.16
75-79	39-45	Cancer and other malignant tumors.....	48	.27	4	.02	17	.10	9.22	.05
80	46	Benign tumors.....	229	1.30	4	.02			7.89	.04
81-85	47-48	Rheumatism, articular, all.....	1,188	6.72	29	.16	2	.01	58.57	.33
81-82	47	Acute articular rheumatism.....	929	5.25	7	.04	2	.01	42.24	.24
83-85	48	Chronic articular rheumatism.....	259	1.46	22	.12			16.33	.09
87-88	50	Diabetes.....	30	.17	12	.07	6	.03	2.87	.02
89	51	Exophthalmic goiter.....	34	.19	22	.12			6.55	.04
97-100	56	Alcoholism and results.....	1,434	8.11	18	.10	5	.03	24.01	.14
101-102	57-58	Chronic occupational poisoning.....	4	.02	1	.01			.52	.00
103-104	59	Other chronic poisoning, including drug habit.....	57	.32	4	.02			2.16	.01
105-106	60	Encephalitis.....	4	.02			2	.01	.12	.00
107	61	Simple meningitis.....	4	.02	1	.01	1	.01	.49	.00
108	61a	Epidemic cerebrospinal meningitis.....	32	.18	2	.01	15	.08	2.18	.01
109	62	Locomotor ataxia.....	26	.15	7	.04	1	.01	4.95	.03
110-115	63	Other diseases of spinal cord.....	12	.07	4	.02			2.06	.01
116	64	Cerebral hemorrhage, apoplexy.....	9	.05			5	.03	.42	.00
117-119	66	Paralysis without specified cause.....	51	.29	7	.04	1	.01	4.95	.03
120-126	67-68	Mental alienation.....	513	2.90	301	1.70	5	.03	92.12	.52
127	69	Epilepsy.....	318	1.80	97	.55	2	.01	17.91	.10
129-133	73	Neuralgia and neuritis.....	1,060	6.17	37	.21	1	.01	44.58	.25
138-141	75a	Follicular conjunctivitis.....	1,134	6.41	4	.02			20.60	.12
142	75b	Trachoma.....	24	.14	7	.04			1.31	.01
166	77	Pericarditis.....	11	.06	1	.01	1	.01	.74	.00
167	78	Acute endocarditis.....	14	.08	1	.01	2	.01	1.16	.01
169-174	79	Organic heart disease.....	346	1.96	108	.61	23	.13	29.41	.17
175	80	Angina pectoris.....	20	.11	1	.01	1	.01	1.03	.01

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

ratios per 1,000 of mean strength, for the Army (entire), including National Guard—men, United States and National Guard—officers and enlisted men, year 1916.

Regulars and National Guard, officers and enlisted men, serving in United States.										National Guard, officers and enlisted men.							
130,394.										65,928.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.	
Number.	Ratio.	Number.		Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
		(1)	(2)														
87	0.67	1	0.01	5	0.04	11	0.09	71	1.08	1	0.02	2	0.03	8	0.13	28	0.55
318	2.44			4	0.03	31	0.24	296	4.49			4	0.06	28	0.55	28	0.55
2,863	21.96			2	0.02	63	0.49	2,077	31.50			1	0.02	42	0.64	42	0.64
260	1.99			2	0.02	10	0.08	203	3.08			1	0.02	7	0.12	7	0.12
6	0.05					1	0.01	3	0.05					1	0.02	1	0.02
15	0.12					3	0.02	4	0.06					1	0.02	1	0.02
1,882	14.43					44	0.34	1,227	18.61					28	0.43	28	0.43
700	5.37					7	0.05	640	9.71					6	0.09	6	0.09
9	0.07					6	0.01	9	0.14					1	0.02	1	0.02
2,088	16.01					17	0.13	1,568	23.78					11	0.17	11	0.17
2,095	16.07	2	0.02	18	0.14	79	0.61	848	12.86			9	0.14	26	0.41	26	0.41
65	0.50			3	0.02	5	0.04	29	0.44			1	0.02	1	0.02	1	0.02
84	0.64			1	0.01	4	0.03	51	0.77			1	0.02	2	0.03	2	0.03
5,329	40.87			2	0.02	66	0.51	2,786	42.26					29	0.45	29	0.45
3	0.02					0	0.00	2	0.03					0	0.00	0	0.00
637	4.89	10	0.05	13	0.10	40	0.31	372	5.64	1	0.02	6	0.09	12	0.18	12	0.18
80	0.61			1	0.01	2	0.02	47	0.71					1	0.02	1	0.02
241	1.85	10	0.05	7	0.05	29	0.23	97	1.47	1	0.02	1	0.02	6	0.10	6	0.10
316	2.42			5	0.04	8	0.06	228	3.46			4	0.06	4	0.06	4	0.06
59	0.45			2	0.02	2	0.02	15	0.23			1	0.02	1	0.02	1	0.02
1,436	11.01					18	0.14	755	11.45					9	0.14	9	0.14
15	0.12					3	0.02	4	0.06					0	0.00	0	0.00
335	2.57					10	0.07	133	2.02					3	0.04	3	0.04
31	0.24			8	0.06	6	0.05	22	0.33			2	0.03	1	0.02	1	0.02
1	0.01					0	0.00	1	0.02					0	0.00	0	0.00
7	0.05					4	0.03	1	0.02					0	0.00	0	0.00
497	3.81	288	1.89	1.45	0.11	25	0.19	186	2.84	70	1.06	6	0.09	17	0.26	17	0.26
456	3.50	276	1.83	1.40	0.11	35	0.27	178	2.75	69	1.05	3	0.05	16	0.25	16	0.25
2	0.02	2	0.01	0.01	0.00	2	0.02	34	0.52	1	0.02	2	0.03	1	0.02	1	0.02
39	0.29	10	0.06	0.04	0.03	4	0.03	7	0.11	30	0.45	1	0.02	1	0.02	1	0.02
8	0.06	3	0.02	0.02	0.02	4	0.03	5	0.08	2	0.03	1	0.02	1	0.02	1	0.02
10,970	84.13	260	202	1.55	0.11	11	0.08	522	8.12	102	1.55	2	0.03	177	2.70	177	2.70
1,796	13.77	102	70	0.54	0.04	9	0.07	152	2.33	30	0.46	1	0.02	35	0.54	35	0.54
2,123	16.28	2	0.02	0.02	0.02	2	0.02	101	1.54	2	0.03			35	0.54	35	0.54
7,051	54.07	156	130	1.00	0.07	2	0.02	269	4.14	70	1.06	1	0.02	106	1.61	106	1.61
29	0.22	4	0.03	0.02	0.02	13	0.09	6	0.09	11	0.17			6	0.09	6	0.09
170	1.30	4	0.03	0.02	0.02	4	0.03	5	0.08	2	0.03			1	0.02	1	0.02
1,009	7.74	28	21	0.17	0.01	2	0.02	51	0.77	10	0.15	1	0.02	19	0.29	19	0.29
794	6.09	7	6	0.05	0.00	2	0.02	37	0.56	4	0.06	1	0.02	15	0.23	15	0.23
215	1.65	21	15	0.12	0.01	4	0.03	14	0.21	6	0.09			4	0.06	4	0.06
25	0.19	12	10	0.08	0.01	4	0.03	2	0.03	3	0.05	3	0.05	4	0.06	4	0.06
23	0.18	22	10	0.08	0.01	4	0.03	5	0.08	1	0.02			4	0.06	4	0.06
1,015	7.78	18	14	0.11	0.01	4	0.03	787	11.94	5	0.08	2	0.03	2	0.03	2	0.03
2	0.01	1						22	0.34					2	0.03	2	0.03
30	0.23	4	2	0.02				1	0.02	1	0.02			1	0.02	1	0.02
3	0.02					1	0.01	3	0.05			1	0.02	1	0.02	1	0.02
4	0.03	1	1	0.01	0.01	1	0.01	2	0.03					1	0.02	1	0.02
27	0.21	2	1	0.01	0.01	13	0.10	1	0.02			4	0.06	1	0.02	1	0.02
20	0.15	6	6	0.05	0.00	1	0.01	4	0.06					1	0.02	1	0.02
10	0.08	4	3	0.02				1	0.02					1	0.02	1	0.02
7	0.05					4	0.03	4	0.06			1	0.02	1	0.02	1	0.02
36	0.28	7	5	0.04				4	0.06					1	0.02	1	0.02
364	2.79	288	188	1.44	0.05	5	0.04	70	1.06	25	0.38	1	0.02	6	0.09	6	0.09
275	2.11	97	78	0.60	0.02	2	0.02	14	0.21	22	0.33	2	0.03	5	0.08	5	0.08
883	6.77	37	29	0.22	0.01	1	0.01	36	0.54	10	0.15			10	0.15	10	0.15
884	6.78	4	3	0.02				15	0.22	12	0.18			7	0.12	7	0.12
18	0.14	7	6	0.05				9	0.14	7	0.11	4	0.06	3	0.04	3	0.04
9	0.07	1	1	0.01	0.01	1	0.01	4	0.06					1	0.02	1	0.02
10	0.08							8	0.12					1	0.02	1	0.02
295	2.26	106	91	0.70	0.05	19	0.15	24	0.36	51	0.77	4	0.06	7	0.11	7	0.11
18	0.14	1	1	0.01	0.01	1	0.01	1	0.02					1	0.02	1	0.02

* Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE NO. 704.—Admissions to sick report, discharges, deaths, and noneffectiveness, with officers and enlisted men, Regulars and National Guard—officers and enlisted men,

Serial Nos.	International classification.	Causes of admission to sick report.	The Army (entire), officers and enlisted men, including National Guard.							
			Mean strength.....							
			176,382							
			Admissions.		Discharges.		Deaths.		Noneffective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.	40	0.23	6	0.03	7	0.04	3.94	0.02
178-179	82	Embolism and thrombosis.....	6	.03			1	.01	.65	.00
181	83b	Hemorrhoids.....	1,794	10.15	11	.06			48.43	.47
183	83d	Varicose veins.....	208	1.18	28	.16			10.93	.06
184	83e	Varicocele.....	622	3.52	5	.03			21.50	.12
185-187	84	Diseases of the lymphatic system.....	1,222	6.91					63.81	.36
193-199	86	Diseases of the nasal fossae.....	2,649	14.98	6	.03			34.39	.19
200-202	87	Diseases of the larynx.....	449	2.54	1	.01	1	.01	6.78	.04
203-204	88	Diseases of the thyroid body.....	69	.39	14	.08			6.25	.04
205-206	89-90	Bronchitis.....	7,186	40.65	11	.06	1	.01	115.20	.65
207	91	Broncho-pneumonia.....	102	.58	11	.06			6.42	.04
208	92	Pneumonia.....	531	3.00	4	.02	65	.37	30.59	.17
209-215	93	Pleurisy.....	773	4.37	16	.09	2	.01	33.35	.19
216-217	94	Pulmonary congestion and pulmonary apoplexy.....	27	.15			4	.02	.72	.00
219	96	Asthma.....	222	1.26	22	.12			10.87	.06
220	97	Pulmonary emphysema.....	4	.02	1	.01			.51	.00
221	98a	Hemoptysis.....	13	.07					.47	.00
222	98b	Hay fever.....	12	.07					.37	.00
224-227	99a	Diseases of the teeth and gums.....	1,008	6.21	6	.03			17.47	.10
228-231	99b	Other diseases of the mouth and annexa.....	168	.95	16	.09			3.37	.02
232-236	100	Diseases of the pharynx.....	9,609	54.35					130.78	.74
238	102	Ulcer of stomach.....	77	.44	10	.06	4	.02	5.13	.03
239-244	103	Other diseases of stomach (cancer excepted).....	2,893	16.36	14	.08	1	.01	42.38	.24
245-253	105	Diarrhea and enteritis.....	17,568	99.36	8	.05	6	.03	168.68	.95
254	106	Ankylostomiasis.....	69	.39					2.92	.02
255-259	107	Intestinal parasites.....	159	.90					2.85	.02
260	108	Appendicitis.....	2,137	12.09	12	.07	33	.19	118.44	.67
261-263	109	Hernia.....	1,475	8.34	1	.01	7	.04	97.85	.55
264-267	110a	Diseases of the anus and fecal fistula.....	194	1.10	2	.01			8.95	.05
268-272	110b	Other diseases of the intestines.....	5,735	32.43	22	.12	2	.01	70.48	.40
275	113	Cirrhosis of liver.....	15	.08	2	.01	2	.01	1.45	.01
276	114	Biliary calculi.....	33	.19			1	.01	2.81	.02
277-281	115	Other diseases of liver and gall bladder.....	913	5.16	6	.03	5	.03	31.91	.18
283-284	117	Simple peritonitis.....	12	.07			8	.05	.50	.00
288	119	Acute nephritis.....	88	.50	1	.01	9	.05	4.63	.03
289-291	120	Bright's disease.....	114	.64	22	.12	14	.08	17.69	.10
293-299	122	Other diseases of the kidney and annexa.....	109	.62	7	.04	2	.01	9.98	.06
303-306	124	Diseases of the bladder.....	447	2.53	45	.25			16.84	.10
E 304	124b	Enuresis.....	185	1.05	38	.21			8.93	.05
307-309	125	Diseases of the urethra, urinary abscess, etc.....	301	1.70	4	.02			6.47	.04
310-312	126	Diseases of the prostate.....	37	.21					1.18	.01
313-319	127	Diseases of the male genital organs (non venereal).....	1,188	6.72	6	.03			33.52	.19
322-323	143	Furuncle and carbuncle.....	2,627	14.86			1	.01	40.60	.23
324-325	144	Acute abscess and cellulitis.....	2,968	16.79					69.94	.40
352-357	146	Diseases of the bones.....	467	2.64	26	.15			29.49	.17
358-360	147	Diseases of the joints.....	832	4.71	68	.38			50.63	.29
367	147g	Flat foot.....	894	5.08	213	1.20			48.91	.28
372	150	Congenital malformations.....	678	3.83	13	.07			19.15	.11
373-374	154	Senility.....	3	.02					.18	.00
375	189Aa	Febricula, simple continued, and other fevers of undetermined causation.....	2,432	13.75					51.30	.29
379	189Ba	Under observation, undiagnosed and unknown.....	648	3.67	50	.28	5	.03	10.59	.06
380	189Bb	Malingering.....	91	.51					2.56	.01

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

ratios per 1,000 of mean strength, for the Army (entire), including National Guard—United States and National Guard—officers and enlisted men, year 1916—Continued.

Regulars and National Guard, officers and enlisted men, serving in United States.								National Guard, officers and enlisted men.							
130,394.								(65,928.							
Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
Number.	Ratio.	Number.		Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.
		(1)	(2)												
32	0.25	6	3	0.05	6	0.02	3.51	0.03	11	0.17	1	0.02	1	0.02	0.44
4	.03	11	11	.08	1	.01	.54	.00	1	.02					.00
1,430	10.97	11	11	.08			39.46	.30	991	15.03	10	.15			21.81
167	1.28	28	20	.15			7.60	.06	114	1.73	16	.24			3.36
528	4.05	5	5	.04			16.79	.13	394	5.98	4	.06			10.21
801	6.14						41.08	.32	375	5.69					13.86
2,136	16.38	6	6	.05			20.40	.20	1,095	16.61	4	.06			9.74
419	3.21	1	1	.01	1	.01	6.29	.05	256	3.88					3.48
48	.37	13	10	.08			4.05	.03	31	.47	5	.08			1.19
5,848	44.85	11	11	.08	1	.01	86.73	.67	3,490	52.94	6	.09	1	.02	44.13
87	.67				10	.08	5.70	.04	46	.70			1	.02	2.30
468	3.59	4	3	.02	56	.42	26.99	.21	304	4.61	1	.02	32	.49	14.11
619	4.75	16	10	.08	2	.02	25.13	.19	418	6.34	8	.12	2	.03	9.92
17	.13				2	.02	.51	.00	15	.23					.48
171	1.31	21	19	.15			7.80	.06	93	1.41	9	.14			2.81
4	.03	1	1	.01			.31	.00	1	.02					.07
7	.05						.26	.00	2	.03					.14
8	.06						.34	.00	5	.08					.08
760	5.83	6	6	.05			13.75	.11	392	5.95	6	.09			4.83
126	.97	16	16	.12			2.61	.02	63	.96	16	.24			.83
7,924	60.77						104.33	.80	3,780	57.34					43.95
70	.54	10	9	.07	2	.02	4.65	.04	44	.67	7	.11	1	.02	1.86
2,337	17.92	14	12	.09	1	.01	33.49	.26	1,606	24.36	3	.05	1	.02	15.30
14,612	112.06	8	7	.05	3	.02	130.97	1.00	12,140	184.14	4	.06	1	.02	94.04
31	.24						1.58	.01	8	.12					.45
99	8.76						1.87	.01	22	.33					.61
1,711	13.12	12	12	.09	28	.21	91.67	.70	1,089	16.52	9	.14	15	.23	42.81
1,292	9.91	159	151	1.16	5	.04	85.78	.64	965	14.64	123	1.87	3	.05	46.80
137	1.05	2	2	.02			6.61	.05	96	1.46	2	.03			3.34
4,183	32.08	22	14	.11	1	.01	51.00	.39	2,526	38.32	3	.05	1	.02	23.94
13	.10	2	2	.02	2	.01	1.42	.01	5	.08	1	.02			.48
25	.19				1	.01	2.23	.02	9	.14					.29
718	5.51	5	4	.03	4	.03	23.94	.18	466	7.07	2	.03	1	.02	11.67
9	.07				7	.05	.48	.00	6	.09			4	.06	.14
46	.35	1	1	.01	7	.05	2.60	.02	23	.35	1	.02	2	.03	1.09
80	.61	22	13	.10	13	.08	13.62	.10	30	.46	4	.06	2	.03	1.30
77	.59	7	7	.05	2	.01	7.04	.05	30	.46	1	.02			.80
374	2.87	45	38	.29			13.67	.10	201	3.05	16	.24			6.14
153	1.17	38	31	.24			7.53	.06	63	.96	9	.14			2.48
180	1.38	4	4	.03			4.69	.04	89	1.35	4	.06			2.21
27	.21						.87	.01	17	.26					.35
980	7.52	6	4	.03			27.64	.21	697	10.57	3	.05			16.17
1,907	14.63						28.06	.22	976	14.80					11.37
2,154	16.52	1	1	.01			48.36	.37	1,237	18.77	1	.02			22.81
340	2.61	26	21	.16			22.85	.18	194	2.94	15	.23			6.50
685	5.25	67	50	.38			40.48	.31	403	6.11	29	.44			14.20
725	5.56	212	161	1.23			33.38	.29	486	7.37	74	1.12			11.74
498	3.82	13	12	.09			14.19	.11	313	4.75	10	.15			7.01
2	.02						.07	.00							
2,064	15.83						40.71	.31	1,789	27.14					35.49
503	4.55	50	49	.38	4	.03	8.28	.06	535	8.11	49	.74			5.10
73	.56						2.14	.02	45	.68					.59

* Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE No. 70½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with officers and enlisted men, Regulars and National Guard—officers and enlisted men,

Serial No.	International classification.		The Army (entire), officers and enlisted men, including National Guard.								
		Mean strength.....	176,382								
			Admissions.		Discharges.		Deaths.		Noneffective.		
		Causes of admission to sick report.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	
		AFFECTIORS PRODUCED BY EXTERNAL CAUSES.¹									
426-434	155-163	Suicides, all.....	49	0.28			76	0.43			
435	164	Poisoning by food.....	429	2.43							
436	165a	Venomous bites and stings.....	163	.92							
437	165b	Other poisoning (deleterious gases excepted).....	82	.46			6	.03			
438	166	Confagration.....	4	.02			3	.02			
439	167	Burns (confagration excepted).....	588	3.33							
440	168	Absorption of deleterious gases.....	2	.01			2	.01			
441	169a	Suffocation, strangulation.....	2	.02			2	.01			
442	169	Drowning, accidental.....					63	.36			
443	170	Traumatism by firearms (other than specified).....	619	3.50	51	0.29	38	.21			
444	170a	Shot by sentry or guard.....	7	.04	2	.01	5	.03			
445	171	Traumatism by cutting or piercing instruments.....	1,909	10.80	17	.10	1	.01			
446	172	Traumatism by fall.....	4,888	27.65	53	.30	16	.09			
447	173	Traumatism in mines and quarries.....	1	.01			1	.01			
448	174	Traumatism by machines.....	115	.65	2	.01					
449	175	Traumatism by other crushing.....	1,178	6.66	37	.21	37	.21			
450	176	Injuries by animals.....	2,139	12.10	4	.02	7	.04			
451	177	Starvation.....	2	.01			1	.01			
452	178	Effects of excessive cold.....	23	.13							
453	179	Effects of heat.....	1,035	5.85			5	.03			
454	180	Effects of lightning.....	21	.12	1	.01	3	.02			
455	181	Effects of electricity.....	4	.02			1	.01			
456-458	182-4	Homicides, all.....	13	.07			36	.20			
459	185	Fractures, causes not specified.....	2	.01							
460	186	Other external violence.....	9,202	52.05	35	.20	7	.04			
462-466		Killed or wounded in action.....	42	.24	4	.02	36	.20			
462		By bullet.....	41	.23	4	.02	36	.20			
463		By shell.....									
464		By sword or bayonet.....									
465		By bolo, kris, etc.....									
466		By other weapon.....	1	.01							
		DISEASES AND INJURIES GROUPED.									
		General diseases.....	41,689	235.80	700	3.96	163	.92	1,563.20	8.84	
1-19		Epidemic diseases.....	21,627	122.32	18	.10	56	.32	484.24	2.74	
20-59		Other general diseases.....	20,062	113.47	682	3.86	107	.61	1,078.97	6.10	
		Diseases of the nervous system and organs of special sense.....	6,384	36.11	677	3.83	35	.20	310.73	1.76	
60-74		Of the nervous system.....	2,606	14.74	492	2.78	34	.19	198.92	1.13	
75		Of the eye and its annexa.....	2,276	12.87	115	.65			65.50	.37	
76		Of the ear and its annexa.....	1,502	8.50	70	.40	1	.01	46.31	.26	
77-85		Diseases of the circulatory system.....	4,593	25.98	181	1.02	38	.21	193.24	1.09	
86-98		Diseases of the respiratory system.....	12,061	68.22	75	.42	87	.49	246.09	1.40	
99-118		Diseases of the digestive system.....	42,169	238.51	261	1.48	73	.41	707.69	4.00	
119-127		Diseases of the genito-urinary system.....									
128-145		Diseases of the skin and cellular tissue.....	2,404	13.60	89	.50	25	.14	95.12	.54	
146-149		Diseases of the organs of locomotion.....	10,025	56.70	19	.11	8	.02	222.59	1.26	
150		Malformations, etc.....	5,476	30.97	347	1.96	1	.01	208.08	1.18	
151		Diseases, results of old age.....	678	3.83	13	.07			19.15	.11	
154		Ill-defined diseases.....	3	.02					.18	.00	
159			3,396	19.15	52	.29	5	.03	67.30	.38	
		Total for disease.....	128,868	728.88	2,414	13.65	430	2.43	3,633.96	20.55	
155-186		External causes.....	22,982	129.99	277	1.57	346	1.96	655.43	3.71	
		Total for disease and external causes.....	151,850	858.87	2,691	15.22	776	4.39	4,289.39	24.26	

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

ratios per 1,000 of mean strength, for the Army (entire), including National Guard—United States and National Guard—officers and enlisted men, year 1916—Continued.

Regulars and National Guard, officers and enlisted men, serving in United States.										National Guard, officers and enlisted men.									
120,304.										65,928.									
Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.			
Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
		(1)	(2)		(1)	(2)													
42	0.33				51	50	0.38			38	0.58			11	0.17				
215	1.65									168	2.55								
125	.96									78	1.18								
59	.45				5	5	.04			23	.35			1	.02				
2	.02									2	.03								
450	.35									220	2.34								
1	.01				1	1	.01			1	.02								
2	.02				2	2	.02			1	.02								
					39	39	.30							17	.26				
477	3.66	50	38	0.29	32	32	.25			216	3.28	3	0.06	14	.21				
6	.06	2	1	.01	5	5	.04			3	.06			2	.03				
1,386	28.65	17	16	.12	1	1	.01			550	8.34	7	.11	1	.02				
2,736	28.65	50	29	.22	10	10	.08			1,626	24.66	6	.09	3	.05				
82	.13	2								48	.73								
835	6.40	37	27	.21	28	28	.21			246	3.73	3	.05	8	.12				
1,736	13.31	4	3	.02	7	7	.05			979	14.85	2	.03	4	.06				
1	.01				1	1	.01			1	.02			1	.02				
16	.12									2	.03								
951	7.29				5	5	.04			844	12.80			3	.05				
20	.15	1	1	.01	2	2	.02			20	.30			1	.02				
1	.01				1	1	.01												
6	.05				23	21	.16			1	.02			5	.08				
2	.02																		
7,236	55.49	35	22	.17	6	6	.05			4,185	80.46	10	.15						
10	.08	4	1	.01	10	9	.07			1	.02								
										1	.02								
31,790	243.80	668	474	3.64	134	113	.87	1,176.45	9.02	17,689	268.31	205	3.11	41	.62	411.44	6.24		
17,702	135.76	13	9	.07	50	50	.38	370.36	2.84	10,957	166.20	2	.03	25	.38	187.74	2.85		
14,083	108.04	655	465	3.57	84	63	.48	806.09	6.18	6,732	102.11	203	3.08	16	.24	223.70	3.39		
4,946	37.94	658	501	3.84	30	27	.21	243.54	1.87	2,812	42.65	194	14.00	11	.17	66.73	1.06		
2,004	15.37	477	330	2.53	29	26	.20	154.14	1.18	981	14.88	70	1.06	10	.15	30.30	.46		
1,736	13.31	113	106	.81				50.79	.39	1,059	16.06	81	1.23			21.77	.33		
1,207	9.26	68	65	.50	1	1	.01	38.61	.30	772	11.71	43	.65	1	.02	17.66	.27		
2,544	19.18	179	150	1.15	30	30	.28	145.64	1.12	2,200	33.37	95	1.44	7	.11	62.07	.94		
9,846	75.51	73	73	.56	74	61	.47	190.88	1.46	5,760	87.37	33	.50	37	.56	88.69	1.35		
34,056	261.88	259	237	1.82	56	55	.42	557.90	4.28	23,221	352.22	177	2.68	28	.42	262.45	4.43		
1,864	14.30	80	70	.54	22	19	.15	73.35	.56	1,136	17.22	29	.44	4	.06	28.71	.44		
7,235	55.49	18	13	.10	2	2	.02	149.87	1.15	3,945	59.84	7	.11	1	.02	64.45	.98		
4,450	34.13	345	265	2.03	1	1	.01	164.40	1.26	2,607	39.54	136	2.06	1	.02	58.10	.88		
498	3.82	13	12	.09				14.19	.11	313	4.75	10	.15			7.01	.11		
								.07	.00										
2,875	22.06	52	51	.39	4	4	.03	53.11	.41	2,467	37.42	51	.77			42.37	.64		
101,106	775.39	2,354	1,834	14.07	353	324	2.48	2,769.39	21.24	62,149	942.68	937	14.21	130	1.97	1,125.03	17.06		
17,777	136.33	273	197	1.51	229	225	1.73	449.01	3.83	9,462	143.52	65	.99	71	1.08	172.31	2.62		
118,883	911.72	2,627	2,081	15.58	582	549	4.21	3,268.41	25.07	71,611	1,086.20	1,002	15.20	201	3.05	1,267.35	19.68		

* Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

* Noneffectiveness for individual external causes not tabulated.

TABLE 70½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916.

Serial Nos.	International classification.	Mean strength.....	Officers, United States.							
			S. G. O., 3,056—A. G. O., 3,383.							
			Admissions.		Discharges.		Deaths.		Noneffective.	
		Causes of admission to sick report.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
1	1	Typhoid fever.....	3	0.98			2	2	0.59	0.30
2	1a	Paratyphoid fever.....	3	.98						.37
7-11	4	Malaria.....	17	5.56						1.19
8		Etiolo-autumnal fever.....	2	.65						.31
10		Malarial cachexia.....	2	.65						.66
11		Tertian malarial fever.....	11	3.60						.21
12		Undetermined malarial fever.....	2	.65						.01
14	5	Smallpox and varioloid.....								.05
17	6	Measles.....	1	.33						.03
18	9	Diphtheria.....	2	.65						.05
18	10	Influenza.....	200	65.4			1	1	.30	3.85
20	13	Cholera nostras.....	1	.33						.01
21-23	14	Dysentery.....	21	6.87						2.19
21		Bacillary.....	1	.33						.02
22		Entamoebic.....	16	5.24						2.07
23		Unclassified.....	4	1.31						.11
27	18	Erysipelas.....	1	.33						.04
29	19b	Dengue.....	36	11.78						.56
34	19g	Mumps.....	1	.33						.03
37	20	Purulent infection and septice- mia.....	2	.65			1	1	.30	.07
49-57	28-34	Tuberculosis, all.....	6	1.96			2	2	.59	7.11
49-51	28	Tuberculosis of lungs.....	5	1.61			1	1	.30	6.43
53-57	30-34	Tuberculosis of other organs.....	1	.33						.68
59-74	37-38	Veneral diseases, all.....	10	3.27						1.39
59-64	37	Syphilis.....	7	2.29						1.14
65-67	38a	Soft chancre.....								
68-74	38b	Gonococcus infection.....	3	.96						.25
75-79	39-45	Cancer and other malignant tumors.....	5	1.61						1.53
80	46	Benign tumors.....	3	.98						.11
81-85	47-48	Rheumatism, articular, all.....	10	3.27						1.03
81-82	47	Acute articular rheumatism.....	7	2.23						.67
83-85	48	Chronic articular rheumatism.....	3	.98						.36
87-88	50	Diabetes.....	1	.33						.11
89	51	Exophthalmic goiter.....								.17
97-100	56	Alcoholism and results.....	11	3.60						.33
101-102	57-58	Chronic occupational poisoning.....								
103-104	59	Other chronic poisoning, includ- ing drug habit.....								
105-106	60	Encephalitis.....								
107	61	Simple meningitis.....	1	.33			1	1	.30	.04
108	61a	Epidemic cerebrospinal menin- gitis.....								
109	62	Locomotor ataxia.....								
110-115	63	Other diseases of spinal cord.....								.11
116	64	Cerebral hemorrhage, apoplexy.....	4	1.31						.40
117-119	66	Paralysis without specified cause.....	2	.65						.59
120-126	67-68	Mental alienation.....	8	2.62						1.84
127	69	Epilepsy.....	3	.98						.18
129-133	73	Neuralgia and neuritis.....	21	6.87						2.19
138-141	75a	Follicular conjunctivitis.....	14	4.58						.30
142	75b	Trachoma.....								
166	77	Pericarditis.....								
167	78	Acute endocarditis.....								
169-174	79	Organic heart disease.....	10	3.27						1.84
175	80	Angina pectoris.....	1	.33						.19
176-177	81	Diseases of the arteries, ather- oma, aneurism, etc.....	6	1.96			1	1	.30	1.05

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 704.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

Serial Nos.	International classification.	Causes of admission to sick report.	Officers, United States.							
			S. G. O., 3,066—A. G. O., 3,383.							
			Admissions.		Discharges.		Deaths.		Noneffective.	
			Number.	Ratio.	Number.		Number.		Number.	Ratio.
					(1)	(2)	(1)	(2)		
178-179	82	Embolism and thrombosis.....	26	8.51					0.17	0.06
181	83b	Hemorrhoids.....	3	.98					1.99	.65
183	83d	Varicose veins.....	1	.33					.17	.06
184	83e	Varicocele.....	1	.33						
185-187	84	Diseases of the lymphatic system.....	89	29.12					.01	.00
193-199	86	Diseases of the nasal fossae.....	7	2.29					1.71	.56
200-202	87	Diseases of the larynx.....	1	.33					.05	.02
203-204	88	Diseases of the thyroid body.....	92	30.10					.46	.15
205-206	89-90	Bronchitis.....	4	1.31			2	2	1.60	.52
207	91	Broncho-pneumonia.....	5	1.64			4	4	.25	.08
208	92	Pneumonia.....	7	2.29					.11	.04
209-215	93	Pleurisy.....							.34	.11
216-217	94	Pulmonary congestion and pulmonary apoplexy.....	8	2.62						
219	96	Asthma.....	1	.33					.23	.08
220	97	Pulmonary emphysema.....							.20	.06
221	98a	Hæmoptysis.....								
222	98b	Hay fever.....								
224-227	99a	Diseases of the teeth and gums.....	30	9.82					1.58	.52
228-231	99b	Other diseases of the mouth and annæxa.....	2	.65					.01	.00
232-236	100	Diseases of the pharynx.....	105	34.36					1.49	.49
238	102	Ulcer of stomach.....	7	2.29					.53	.17
239-244	103	Other diseases of stomach (cancer excepted).....	30	9.82					.61	.20
245-253	105	Diarrhea and enteritis.....	124	40.57			1	1	4.67	1.53
254	106	Ankylostomiasis.....								
255-259	107	Intestinal parasites.....								
260	108	Appendicitis.....	32	10.47			2	2	3.75	1.23
261-263	109	Hernia.....	14	4.58					2.19	.72
264-267	110a	Diseases of the anus and fecal fistula.....	6	1.96					.23	.08
268-272	110b	Other diseases of the intestines.....	45	14.73			1	1	1.67	.55
275	113	Cirrhosis of liver.....							.11	.03
276	114	Biliary calculi.....	4	1.31			1	1	.36	.12
277-281	115	Other diseases of liver and gall bladder.....	10	3.27					1.20	.39
283-284	117	Simple peritonitis.....								
288	119	Acute nephritis.....								
289-291	120	Bright's disease.....	13	4.25			1	1	3.43	1.12
293-299	122	Other diseases of the kidney and annæxa.....	4	1.31					.33	.11
303-306	124	Diseases of the bladder.....	3	.98					.09	.03
307-309	125	Diseases of the urethra, urinary abscess, etc.....	1	.33					.07	.02
310-312	126	Diseases of the prostate.....	2	.65					.16	.05
313-319	127	Diseases of the male genital organs (nonvenereal).....	7	2.29					.97	.32
323-323	143	Furuncle and carbuncle.....	6	1.97					.20	.06
324-325	144	Acute abscess and cellulitis.....	17	5.56					.21	.07
352-357	146	Diseases of the bones.....	10	3.27					1.18	.39
358-360	147	Diseases of the joints.....	19	6.22					1.76	.58
375	180Aa	Febricula, simple continued, and other fevers of undetermined causation.....	9	2.94					.11	.04
379	189Ba	Under observation, undiagnosed and unknown.....	5	1.64					.40	.13

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 704.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

Serial Nos.	International classification.	Mean strength.....	Officers, United States.									
			S. G. O., 2,056—A. G. O., 2,383.									
			Admissions.		Discharges.		Deaths.		Noneffective.			
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
Causes of admission to sick report.												
AFFECTIONS PRODUCED BY EXTERNAL CAUSES.*												
426-434	155-163	Suicides, all.....					4	4	1.18			
435	164	Poisoning by food.....	2	0.98								
436	165a	Venomous bites and stings.....	2	.65								
437	165b	Other poisoning (deleterious gases excepted).....	2	.65								
439	167	Burns (conflagrations excepted).....	2	.65								
440	168	Absorption of deleterious gases.....	2	.65								
441	168a	Suffocation, strangulation.....					1	1	.30			
442	169	Drowning, accidental.....					1	1	.30			
443	170	Traumatism by firearms (other than specified).....	1	.33								
444	170a	Shot by sentry or guard.....										
445	171	Traumatism by cutting or piercing instruments.....	5	1.64								
446	172	Traumatism by fall.....	56	18.32			1	1	.30			
448	174	Traumatism by machines.....	1	.33								
449	175	Traumatism by other crushing.....	21	6.87			3	3	.80			
450	176	Injuries by animals.....	13	4.25								
452	178	Effects of excessive cold.....										
453	179	Effects of heat.....										
454	180	Effects of lightning.....										
455	181	Effects of electricity.....										
456-458	182-4	Homicides, all.....					1	1	.30			
459	185	Fractures, causes not specified.....										
460	186	Other external violence.....	42	13.74								
462-466		Killed or wounded in action:										
462		By bullet.....										
463		By shell.....										
464		By sword or bayonet.....										
465		By bolo, kris, etc.....										
466		By other weapon.....										
DISEASES AND INJURIES GROUPED.												
		General diseases.....	343	112.23			7	7	2.07	20.62	6.75	
1-19		Epidemic diseases.....	293	95.87			3	3	.89	8.70	2.85	
20-59		Other general diseases.....	50	16.36			4	4	1.18	11.92	3.90	
		Diseases of the nervous system and organs of special sense.....	145	47.44			1	1	.30	13.57	4.44	
60-74		Of the nervous system.....	85	27.81			1	1	.30	9.63	3.15	
75		Of the eye and its annexa.....	46	15.05						2.87	.94	
76		Of the ear and its annexa.....	14	4.58						1.07	.36	
77-85		Diseases of the circulatory system.....	50	16.36			1	1	.30	5.46	1.79	
86-98		Diseases of the respiratory system.....	214	70.02			6	6	1.77	4.96	1.63	
99-118		Diseases of the digestive system.....	409	133.83			5	5	1.48	18.59	6.08	
119-127		Diseases of the genito-urinary system.....	41	13.42			1	1	.30	5.58	1.83	
142-145		Diseases of the skin and cellular tissue.....	50	16.36			1	1	.30	2.07	.66	
146-149		Diseases of the organs of locomotion.....	75	24.54						4.91	1.61	
150		Malformations, etc.....										
154		Diseases results of old age.....										
189		Ill-defined diseases.....	15	4.91						.52	.17	
		Total for disease.....	1,342	439.14			22	22	6.50	76.27	24.96	
155-186		External causes.....	156	51.05			11	11	3.25	11.08	3.63	
		Total for disease and external causes.....	1,498	490.18			33	33	9.75	87.35	28.60	

* Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

* Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

* Noneffectiveness for individual external causes not tabulated.

TABLE 70.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

Serial Nos.	International classification.	Causes of admission to sick report.	Enlisted men, United States.									
			S. G. O., 61,410—A. G. O., 61,410.									
			Admissions.		Discharges.			Deaths.			Noneffective.	
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
1	1	Typhoid fever.....	13	0.21				1	1	0.02	2.42	0.04
2	1a	Paratyphoid fever.....	19	0.31							2.98	0.05
7-11	4	Malaria.....	709	12.52				1	1	0.02	20.54	0.38
7		Estivo-autumnal fever.....	55	.90				1	1	0.02	2.01	0.03
8		Malarial cachexia.....	1	.02							.72	.01
9		Quartan malarial fever.....	11	.18							.29	.00
10		Tertian malarial fever.....	644	10.49							16.40	.27
11		Undetermined malarial fever.....	58	.94							1.11	.02
13	6b	Vaccinia.....	820	8.47							6.17	.10
14	6	Measles.....	1,246	20.28	2	2	0.03	9	9	.15	52.58	.88
15	7	Scarlet fever.....	36	.59				2	2	.03	3.13	.05
16	7	Diphtheria.....	31	.50							1.61	.03
17	9	Influenza.....	2,343	38.15				1	1	.02	35.49	.55
21-23	14	Dysentery.....	244	3.97	9	5	.08	7	7	.11	28.15	.43
21		Bacillary.....	32	.52							1.15	.02
22		Entamoebic.....	128	2.08	9	5	.08	6	6	.10	21.30	.25
23		Unclassified.....	84	1.37				1	1	.02	3.70	.05
27	18	Erysipelas.....	43	.70				1	1	.03	2.08	.03
29	19b	Dengue.....	645	10.50							8.55	.14
31	19c	German measles.....	11	.18							.30	.00
34	19g	Mumps.....	201	3.27							9.14	.15
37	20	Purulent infection and septacea- mia.....	7	.11				5	5	.08	.22	.00
42-46	25	Mycosis.....	6	.10							.47	.01
49-57	28-34	Tuberculosis, all.....	217	3.53	218	119	1.94	33	17	.28	162.15	2.64
49-51	28	Tuberculosis of lungs.....	198	3.22	207	114	1.86	31	15	.24	155.82	2.54
52	29	Miliary tuberculosis, acute.....	1	.01							.17	.00
53-57	30-32	Tuberculosis of other organs.....	19	.32	10	5	.08	2	2	.03	6.16	.10
58	36	Scrofula (rickets).....	3	.05	1						.31	.01
59-74	37-38	Veneral diseases, all.....	5,003	81.32	158	100	1.63	9	9	.15	342.83	5.58
59-64	37	Syphilis.....	1,128	18.36	72	40	.65	8	8	.13	115.19	.88
65-67	38a	Soft chancre.....	1,107	18.02							63.34	1.06
68-74	38b	Gonococcus infection.....	5,368	84.84	86	60	.98	1	1	.02	162.58	2.65
75-79	39-45	Cancer and other malignant tumors.....	17	.28	4	3	.05	13	8	.13	4.63	.06
80	46	Benign tumors.....	97	1.48	2						3.47	.06
81-85	47-48	Rheumatism, articular, all.....	414	6.74	18	11	.18	1	1	.02	31.32	.51
81-82	47	Acute articular rheumatism.....	306	4.98	3	2	.03	1	1	.02	21.89	.36
83-85	48	Chronic articular rheumatism.....	108	1.76	15	9	.15				1.43	.15
87-88	50	Diabetes.....	11	.18	9	7	.11	1	1	.02	2.22	.04
89	51	Exophthalmic goiter.....	16	.26	21	9	.15				4.42	.07
97-100	56	Alcoholism and results.....	784	12.77	13	9	.15	2	2	.03	13.62	.22
101-102	57-58	Chronic occupational poisoning.....	2	.03	1						.22	.00
103-104	59	Other chronic poisoning, includ- ing drug habit.....	19	.31	3	1	.02				1.43	.02
105-106	60	Encephalitis.....	1	.02	1		.02				.13	.00
107	61	Simple meningitis.....	1	.02								
108	61a	Epidemic cerebrospinal menin- gitis.....	18	.29	2	1	.02	9	9	.15	1.53	.02
109	62	Locomotor ataxia.....	12	.20	5	5	.08	1			3.46	.06
110-115	63	Other diseases of spinal cord.....	5	.08	2	2	.03				.85	.01
116	64	Cerebral hemorrhage, apoplexy.....	2	.03				3	3	.06	.01	.00
117-119	66	Paralysis without specified cause.....	17	.28	3	1	.02				2.25	.04
120-126	67-68	Mental alienation.....	229	3.73	263	163	2.65	4	2	.03	61.70	1.00
127	69	Epilepsy.....	106	1.73	75	56	.91				9.73	.16
128-133	73	Neuralgia and neuritis.....	391	6.37	27	19	.31	1	1	.02	23.73	.39
138-141	75a	Follicular conjunctivitis.....	328	5.34	3	2	.03				7.30	.12
142	75b	Trachoma.....	11	.18	3	2	.03				.61	.01
166	77	Pericarditis.....	5	.08	1	1	.02	1	1	.02	.46	.01
167	78	Acute endocarditis.....	2	.03	1	1	.02				.42	.01
169-174	79	Organic heart disease.....	122	1.99	55	40	.65	15	15	.24	14.91	.24

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 704.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

Serial Nos.	International classification.	Mean strength.....	Enlisted men, United States.									
			S. G. O., 61,410—A. G. O., 61,410.									
			Admissions.		Discharges.		Deaths.		Noneffective.			
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
				(1)	(2)	(1)	(2)					
175	80	Angina pectoris.....	7	0.11	1	1	0.02	1	1	0.02	0.58	0.01
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.....	15	.24	5	2	.03	4	4	.07	2.02	.03
178-179	82	Embolism and thrombosis.....	3	.05	1	1	.02	1	1	.02	.37	.01
181	83b	Hemorrhoids.....	413	6.72	1	1	.02	1	1	.02	15.66	.26
183	83d	Varicose veins.....	50	.81	12	4	.04	1	1	.02	4.16	.07
184	83e	Varicocele.....	133	2.17	1	1	.02	1	1	.02	6.58	.11
185-187	84	Diseases of the lymphatic system.....	425	6.92	1	1	.02	1	1	.02	27.80	.45
193-199	86	Diseases of the nasal fossae.....	952	15.50	2	2	.03	1	1	.02	14.95	.24
200-202	87	Diseases of the larynx.....	156	2.54	1	1	.02	1	1	.02	2.77	.05
203-204	88	Diseases of the thyroid body.....	16	.26	8	5	.08	1	1	.02	2.41	.04
205-206	89-90	Bronchitis.....	2,266	36.89	5	5	.08	7	7	.11	41.00	.67
207	91	Broncho-pneumonia.....	37	.60	1	1	.02	7	7	.11	3.16	.05
208	92	Pneumonia.....	159	2.59	3	3	.03	20	19	.31	12.77	.21
209-215	93	Pleurisy.....	191	3.16	8	2	.03	1	1	.02	14.86	.24
216-217	94	Pulmonary congestion and pulmonary apoplexy.....	2	.03	1	1	.02	2	2	.03	.03	.00
219	96	Asthma.....	70	1.14	12	10	.03	1	1	.02	4.76	.08
220	97	Pulmonary emphysema.....	2	.03	1	1	.02	1	1	.02	.04	.00
221	98a	Hæmoptysis.....	5	.08	1	1	.02	1	1	.02	.12	.00
222	98b	Hay fever.....	3	.05	1	1	.02	1	1	.02	.26	.00
224-227	99a	Diseases of the teeth and gums.....	338	5.50	1	1	.02	1	1	.02	7.34	.12
228-231	99b	Other diseases of the mouth and annexa.....	61	.99	1	1	.02	1	1	.02	1.77	.03
232-236	100	Diseases of the pharynx.....	4,039	65.77	1	1	.02	1	1	.02	58.89	.96
238	102	Ulcer of stomach.....	19	.31	3	2	.03	1	1	.02	2.26	.04
239-244	103	Other diseases of stomach (cancer excepted).....	701	11.41	11	9	.15	1	1	.02	17.58	.29
245-253	105	Diarrhea and enteritis.....	2,348	38.23	4	3	.05	1	1	.02	31.26	.51
254	106	Ankylostomiasis.....	23	.37	1	1	.02	1	1	.02	1.13	.02
255-259	107	Intestinal parasites.....	77	1.25	3	3	.05	1	1	.02	1.26	.02
260	108	Appendicitis.....	560	9.61	3	3	.05	11	11	.18	45.10	.73
261-263	109	Hernia.....	313	5.10	36	28	.46	2	2	.03	36.80	.60
264-267	110a	Diseases of the anus and fecal fistula.....	35	.57	1	1	.02	1	1	.02	3.04	.05
268-272	110b	Other diseases of the intestines.....	1,612	26.25	19	11	.18	1	1	.02	25.42	.41
275	113	Cirrhosis of liver.....	8	.13	1	1	.02	1	1	.02	.83	.01
276	114	Biliary calculi.....	12	.20	1	1	.02	1	1	.02	1.58	.03
277-281	115	Other diseases of liver and gall bladder.....	242	3.94	3	2	.03	3	3	.05	11.07	.18
283-284	117	Simple peritonitis.....	3	.05	1	1	.02	3	3	.05	.33	.01
288	119	Acute nephritis.....	23	.37	1	1	.02	5	5	.08	1.50	.02
289-291	120	Bright's disease.....	37	.60	18	9	.15	10	8	.13	8.90	.14
293-299	122	Other diseases of the kidney and annexa.....	43	.70	6	6	.10	2	1	.02	5.91	.10
303-306	124	Diseases of the bladder.....	170	2.77	29	22	.36	1	1	.02	7.44	.12
307-309	125	Diseases of the urethra, urinary abscess, etc.....	90	1.47	29	22	.36	1	1	.02	5.05	.08
310-312	126	Diseases of the prostate.....	90	1.47	1	1	.02	1	1	.02	2.41	.04
313-319	127	Diseases of the male genital organs (nonvenereal).....	8	.13	1	1	.02	1	1	.02	.36	.01
322-323	143	Furuncle and carbuncle.....	276	4.49	3	1	.02	1	1	.02	10.51	.17
324-325	144	Acute abscess and cellulitis.....	925	15.05	1	1	.02	1	1	.02	16.49	.27
352-357	146	Diseases of the bones.....	900	14.66	1	1	.02	1	1	.02	25.33	.41
358-360	147	Diseases of the joints.....	136	2.21	11	6	.10	1	1	.02	15.17	.25
372	150	Congenital malformations.....	263	4.28	38	21	.34	1	1	.02	24.52	.40
373-374	154	Senility.....	239	3.89	138	87	1.42	1	1	.02	26.59	.43
375	189Aa	Febriola, simple continued, and other fevers of undetermined causation.....	185	3.01	3	2	.03	1	1	.02	7.18	.12
379	189Ba	Under observation, undiagnosed and unknown.....	2	.03	1	1	.02	1	1	.02	.07	.00
380	189Bb	Malingering.....	266	4.33	1	1	.02	1	1	.02	5.10	.08
			53	.86	1	1	.02	4	4	.07	2.78	.05
			28	.46	1	1	.02	1	1	.02	1.55	.03

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 70½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

Serial Nos.	International classification.	Mean strength.....	Enlisted men, United States.									
			S. G. O., 61,410—A. G. O., 61,410.									
			Admissions.		Discharges.			Deaths.			Noneffective.	
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
		Causes of admission to sick report.										
		AFFECTIONS PRODUCED BY EXTERNAL CAUSES.¹										
426-434	155-163	Suicides, all.....	5	0.08				36	35	0.57		
435	164	Poisoning by food.....	44	.72								
436	165a	Venomous bites and stings.....	45	.73								
437	165b	Other poisoning (deleterious gases excepted).....	34	.55				4	4	.07		
439	167	Burns (conflagrations excepted).....	228	3.71								
440	168	Absorption of deleterious gases.....						1	1	.02		
441	168a	Suffocation, strangulation.....	1	.02				1	1	.02		
442	169	Drowning, accidental.....						21	21	.34		
443	170	Traumatism by firearms (other than specified).....	280	4.23	47	35	0.57	18	18	.29		
444	170a	Shot by sentry or guard.....	3	.05	2	1	.02	3	3	.05		
445	171	Traumatism by cutting or piercing instruments.....	831	13.53	10	9	.15					
446	172	Traumatism by fall.....	2,064	33.44	44	23	.37	6	6	.10		
448	174	Traumatism by machines.....	33	.54	2	2	.03					
449	175	Traumatism by other crushing.....	568	9.25	34	24	.39	17	17	.28		
450	176	Injuries by animals.....	744	12.11	2	1	.02	3	3	.05		
452	178	Effects of excessive cold.....	14	.23								
453	179	Effects of heat.....	107	1.74				2	2	.03		
454	180	Effects of lightning.....			1	1	.02	1	1	.02		
455	181	Effects of electricity.....	1	.02				1	1	.02		
456-458	182-4	Homicides, all.....	5	.08				17	15	.26		
459	185	Fractures, causes not specified.....	2	.03								
460	186	Other external violence.....	3,009	49.00	25	12	.20	6	6	.10		
462-466		Killed or wounded in action.....	9	.15	4	1	.02	10	9	.15		
462		By bullet.....	9	.15	4	1	.02	10	9	.15		
463		By shell.....										
464		By sword or bayonet.....										
465		By bolo, kris, etc.....										
466		By other weapon.....										
		DISEASES AND INJURIES GROUPED.										
1-19		General diseases.....	13,758	224.04	463	269	4.38	86	65	1.06	744.38	12.12
20-59		Epidemic diseases.....	6,452	105.06	11	7	.11	22	22	.36	173.92	2.83
		Other general diseases.....	7,306	118.96	452	262	4.27	64	43	.70	570.46	9.29
60-74		Diseases of the nervous system and organs of special sense.....	1,989	32.38	464	307	5.00	18	15	.24	160.23	2.61
75		Of the nervous system.....	938	15.27	407	260	4.23	18	15	.24	114.22	1.86
76		Of the eye and its annexa.....	630	10.26	32	25	.41				26.14	.43
77-85		Of the ear and its annexa.....	421	6.85	25	22	.36				19.87	.32
86-98		Diseases of the circulatory system.....	1,294	21.07	84	55	.90	22	22	.36	78.11	1.27
99-118		Diseases of the respiratory system.....	3,872	63.05	40	28	.46	31	30	.49	97.22	1.58
119-127		Diseases of the digestive system.....	10,426	169.77	82	60	.98	23	22	.36	246.87	4.02
128-143		Diseases of the genito-urinary system.....	688	11.20	60	41	.67	17	14	.23	39.06	.64
144-145		Diseases of the skin and cellular tissue.....	3,240	52.76	11	6	.10				83.35	1.36
146-149		Diseases of the organs of locomotion.....	1,768	28.79	209	129	2.10				101.39	1.65
150		Malformations, etc.....	185	3.01	3	2	.03				7.18	.12
154		Diseases results of old age.....	2	.03								
159		Ill-defined diseases.....	393	6.43	1	1	.02	4	4	.07	10.22	.17
155-186		Total for disease.....	37,615	612.52	1,417	897	14.61	201	172	2.80	1,568.09	25.53
		External causes.....	8,159	132.86	208	132	2.15	147	143	2.33	315.62	5.14
		Total for disease and external causes.....	45,774	745.38	1,625	1,029	16.76	348	315	5.13	1,883.71	30.67

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.³ Noneffectiveness for individual external causes not tabulated.

TABLE 70½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

Serial Nos.	International classification.	Causes of admission to sick report.	Total, United States.									
			S. G. O., 64,466—A. G. O., 64,798.									
			Admissions.		Discharges.		Deaths.		Noneffective.			
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
1	1	Typhoid fever.....	16	0.25				3	3	0.05	2.72	0.04
2	1a	Paratyphoid fever.....	22	.34							3.36	.05
7-11	4	Malaria.....	786	12.19				1	1	.02	21.72	.34
7		Estivo-autumnal fever.....	57	.88				1	1	.02	2.32	.04
8		Malarial cachexia.....	3	.05							1.38	.02
9		Quartan malarial fever.....	11	.17							.29	.00
10		Tertian malarial fever.....	655	10.16							16.61	.26
11		Undetermined malarial fever.....	60	.93							1.12	.02
13	5b	Vaccinia.....	1,520	8.07							6.17	.10
14	6	Measles.....	1,247	19.35	2	2	0.03	9	9	.14	52.91	.82
15	7	Scarlet fever.....	36	.56				2	2	.03	3.13	.05
17	9	Diphtheria.....	33	.51							1.66	.03
18	10	Influenza.....	2,543	39.45				2	2	.03	37.33	.58
20	13	Cholera nostras.....	1	.02							.01	.00
21-23	14	Dysentery.....	265	4.11	9	5	.08	7	7	.11	28.34	.44
21		Bacillary.....	33	.51							1.17	.02
22		Entamebic.....	144	2.23	9	5	.08	6	6	.09	23.36	.36
23		Unclassified.....	88	1.37				1	1	.02	3.80	.06
27	18	Erysipelas.....	44	.68				1	1	.02	2.12	.03
29	19b	Dengue.....	681	10.56							9.11	2.33
31	19d	German measles.....	11	.17							.30	.00
34	19g	Mumps.....	202	3.13							9.17	.14
37	20	Purulent infection and septice- mia.....	9	.14				6	6	.09	.29	.00
42-46	25	Mycosis.....	6	.09							.47	.01
49-57	28-34	Tuberculosis, all.....	223	3.46	218	119	1.94	35	19	.29	109.26	2.63
49-51	28	Tuberculosis of lungs.....	203	3.15	207	114	1.86	32	16	.25	162.24	2.52
52	29	Miliary tuberculosis, acute.....			1						.17	.00
53-57	30-34	Tuberculosis of other organs.....	20	.32	10	5	.09	3	3	.05	6.85	.11
58	36	Scoliosis (rickets).....	3	.05	1						.31	.00
59-74	37-38	Veneral diseases, all.....	5,613	87.07	158	100	1.63	9	9	.14	344.23	5.34
59-64	37	Syphilis.....	1,135	17.61	72	40	.65	8	8	.12	116.33	1.80
65-67	38a	Soft chancre.....	1,107	17.17							63.34	1.01
68-74	38b	Gonococcus infection.....	3,371	52.30	86	60	.98	1	1	.02	162.84	2.53
75-79	39-45	Cancer and other malignant tumors.....	22	.34	4	3	.05	13	8	.12	6.16	.10
80	46	Benign tumors.....	94	1.46	2						3.58	.06
81-85	47-48	Rheumatism, articular, all.....	424	6.58	18	11	.18	1	1	.02	32.55	.50
81-82	47	Acute articular rheumatism.....	313	4.86	3	2	.02	1	1	.02	22.56	.35
83-85	48	Chronic articular rheumatism.....	111	1.72	15	9	.15				9.79	.15
87-88	50	Diabetes.....	12	.19	9	7	.11	1	1	.02	2.34	.04
89	51	Exophthalmic goiter.....	16	.25	21	9	.15				4.88	.07
97-100	56	Alcoholism and results.....	795	12.33	13	9	.15	2	2	.03	13.95	.22
101-102	57-58	Chronic occupational poisoning.....	2	.03	1						.22	.00
103-104	59	Other chronic poisoning, includ- ing drug habit.....	19	.29	3	1	.02				1.43	.02
105-106	60	Encephalitis.....	2	.03	1	1	.02	1	1	.02	.17	.00
107	61	Simple meningitis.....	18	.28	2	1	.02	9	9	.14	1.53	.02
108	61a	Epidemic cerebrospinal menin- gitis.....	12	.19	5	5	.08				3.46	.05
109	62	Locomotor ataxia.....	7	.11	2	2	.03				.96	.01
110-115	63	Other diseases of spinal cord.....	6	.09				3	3	.05	.42	.01
116	64	Cerebral hemorrhage, apoplexy.....	19	.29	3	1	.02				2.84	.04
117-119	66	Paralysis without specified cause.....	237	3.68	263	163	2.65	4	2	.03	63.54	.99
120-126	67-68	Mental alienation.....	109	1.60	75	56	.91				9.92	.15
127	69	Epilepsy.....	412	6.39	27	19	.31	1	1	.02	25.91	.40
129-133	73	Neuralgia and neuritis.....	342	5.31	3	2	.03				7.60	.12
138-141	75a	Follicular conjunctivitis.....	11	.17	3	2	.03				.61	.01
142	75b	Trachoma.....	5	.08	1	1	.02	1	1	.02	.46	.01
166	77	Pericarditis.....	2	.03	1	1	.02				.42	.01
167	78	Acute endocarditis.....	132	2.05	55	40	.65	15	15	.23	16.75	.26
169-174	79	Organic heart disease.....	8	.12	1	1	.02	1	1	.02	.77	.01
175	80	Angina pectoris.....										

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 70½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

Serial Nos.	International classification.	Causes of admission to sick report.	Total, United States.							
			S. G. O., 64,466—A. G. O., 64,793.							
			Admissions.		Discharges.			Deaths.		
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.
					(1)	(2)		(1)	(2)	
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.	21	0.33	5	2	0.03	5	5	0.08
178-179	82	Embolism and thrombosis.	3	.05				1	1	.02
181	83b	Hemorrhoids.	439	6.81	1	1	.02			
183	83d	Varicose veins.	53	.82	12	4	.07			
184	83e	Varicocele.	134	2.08	1	1	.02			
185-187	84	Diseases of the lymphatic system.	426	6.61						
193-199	86	Diseases of the nasal fossae.	1,041	16.15	2	2	.03			
200-202	87	Diseases of the larynx.	163	2.53	1	1	.02	1	1	.02
203-204	88	Diseases of the thyroid body.	17	.26	8	5	.08			
205-206	89-90	Bronchitis.	2,358	36.58	5	5	.08			
207	91	Broncho-pneumonia.	41	.64				9	9	.14
208	92	Pneumonia.	164	2.54	3	2	.03	24	23	.35
209-215	93	Pleurisy.	201	3.12	8	2	.03			
216-217	94	Pulmonary congestion and pulmonary apoplexy.	2	.03				2	2	.03
219	96	Asthma.	78	1.21	12	10	.16			
220	97	Pulmonary emphysema.	3	.05	1	1	.02			
221	98a	Hæmoptysis.	5	.08						
222	98b	Hay fever.	3	.05						
224-227	99a	Diseases of the teeth and gums.	368	5.71						
228-231	99b	Other diseases of the mouth and annæxæ.	63	.98						
232-236	100	Diseases of the pharynx.	4,144	64.28						
238	102	Ulcer of stomach.	26	.40	3	2	.03	1	1	.02
239-244	103	Other diseases of stomach (cancer excepted).	731	11.34	11	9	.15			
245-253	105	Diarrhea and enteritis.	2,472	38.35	4	3	.05	2	2	.03
254	106	Ankylostomiasis.	23	.36						
255-259	107	Intestinal parasites.	77	1.19						
260	108	Appendicitis.	622	9.65	3	3	.05	13	13	.20
261-263	109	Hernia.	327	5.07	36	28	.46	2	2	.03
264-267	110a	Diseases of the anus and fecal fistula.	41	.64						
268-272	110b	Other diseases of the intestines.	1,657	25.71	19	11	.18			
275	113	Cirrhosis of liver.	8	.12	1	1	.02	2	2	.02
276	114	Biliary calculi.	16	.25				1	1	.02
277-281	115	Other diseases of liver and gall bladder.	252	3.91	3	2	.03	3	3	.05
283-284	117	Simple peritonitis.	3	.05				3	3	.05
288	119	Acute nephritis.	23	.36				5	5	.08
289-291	120	Bright's disease.	50	.78	18	9	.15	11	9	.15
293-299	122	Other diseases of the kidney and annæxæ.	47	.73	6	6	.10	2	1	.02
303-306	124	Diseases of the bladder.	173	2.68	29	22	.36			
307-309	125	Diseases of the urethra, urinary abscess, etc.	90	1.40	29	22	.36			
310-312	126	Diseases of the prostate.	91	1.41						
313-319	127	Diseases of the male genital organs (nonvenereal).	10	.16						
322-323	143	Furuncle and carbuncle.	283	4.39	3	1	.02			
324-325	144	Acute abscess and cellulitis.	931	14.46						
352-357	146	Diseases of the bones.	917	14.22						
358-360	147	Diseases of the joints.	146	2.26	11	6	.10			
372	150	Congenital malformations.	282	4.37	38	21	.34			
373-374	154	Senility.	239	3.71	138	87	1.42			
375	189Aa	Febricula, simple continued, and other fevers of undetermined causation.	185	2.87	3	2	.03			
379	189Ba	Under observation, undiagnosed and unknown.	2	.03						
380	189Bb	Malingering.	275	4.27						
			58	.90	1	1	.02	4	4	.06
			28	.43						

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 704.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the United States (continental), excluding Alaska, officers and total American troops, for the year 1916—Continued.

		Total, United States.									
		Mean strength.....		B. G. O., 64,466—A. G. O., 64,798.							
Serial Nos.	International classification.	Causes of admission to sick report.		Admissions.		Discharges.		Deaths.		Noneffective.	
		Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
										(1)	(2)
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹											
426-434	155-163	Suicides, all.....	5	0.08				40	39	0.60	
435	164	Poisoning by food.....	47	.73							
436	165a	Venomous bites and stings.....	47	.73							
437	165b	Other poisoning (deleterious gases excepted).....	36	.56				4	4	.06	
439	167	Burns (conflagrations excepted).....	230	3.57							
440	168	Absorption of deleterious gases.....						1	1	.02	
441	169a	Suffocation, strangulation.....	1	.02				2	2	.03	
442	169	Drowning, accidental.....						22	22	.34	
443	170	Traumatism by firearms (other than specified).....	261	4.05	47	35	0.57	18	18	.28	
444	170a	Shot by sentry or guard.....	3	.05	2	1	.02	3	3	.05	
445	171	Traumatism by cutting or piercing instruments.....	836	12.97	10	9	.15				
446	172	Traumatism by fall.....	2,110	32.73	44	23	.37	7	7	.11	
448	174	Traumatism by machines.....	34	.53	2	2	.03				
449	175	Traumatism by other crushing.....	589	9.14	34	24	.39	20	20	.31	
450	176	Injuries by animals.....	757	11.74	2	1	.02	3	3	.05	
452	178	Effects of excessive cold.....	14	.22							
453	179	Effects of heat.....	107	1.66				2	2	.03	
454	180	Effects of lightning.....			1	1	.02	1	1	.02	
455	181	Effects of electricity.....	1	.02				1	1	.02	
456-458	182-4	Homicides, all.....	5	.08				18	16	.25	
459	185	Fractures, causes not specified.....	2	.03							
460	186	Other external violence.....	3,051	47.33	25	12	.20	6	6	.09	
462-466		Killed or wounded in action.....	9	.14	4	1	.02	10	9	.14	
462		By bullet.....	9	.14	4	1	.02	10	9	.14	
463		By shell.....									
464		By sword or bayonet.....									
465		By bolo, kris, etc.....									
466		By other weapon.....									
DISEASES AND INJURIES GROUPED.											
		General diseases.....	14,101	218.74	463	269	4.38	93	72	1.11	765.00
1-19		Epidemic diseases.....	6,745	104.63	11	7	.11	25	25	.39	182.62
20-59		Other general diseases.....	7,356	114.11	452	262	4.27	68	47	.73	582.39
		Diseases of the nervous system and organs of special sense.....	2,134	33.11	464	307	5.00	19	16	.25	173.80
60-74		Of the nervous system.....	1,023	15.87	407	260	4.23	19	16	.25	123.84
75		Of the eye and its annexa.....	676	10.49	32	25	.41				29.01
76		Of the ear and its annexa.....	435	6.75	25	22	.36				20.95
77-85		Diseases of the circulatory system.....	1,344	20.85	84	55	.90	23	23	.35	83.57
86-98		Diseases of the respiratory system.....	4,086	63.38	40	28	.46	37	36	.56	102.19
99-118		Diseases of the digestive system.....	10,835	168.07	82	60	.98	28	27	.42	265.45
119-127		Diseases of the genito-urinary system.....	729	11.31	60	41	.67	18	15	.23	44.64
142-145		Diseases of the skin and cellular tissue.....	3,290	51.04	11	6	.10	1	1	.02	85.41
146-149		Diseases of the organs of locomotion.....	1,843	28.59	209	129	2.10				106.30
150		Malformations, etc.....	185	2.87	3	2	.03				7.18
154		Diseases results of old age.....	2	.03							.11
189		Ill-defined diseases.....	408	6.33	1	1	.02	4	4	.06	10.74
		Total for disease.....	38,957	604.30	1,417	897	14.61	223	194	2.99	1,644.36
155-186		External causes.....	8,315	128.98	208	132	2.15	158	154	2.38	326.70
		Total for disease and external causes.....	47,272	733.29	1,625	1,029	16.76	381	348	5.37	1,971.06

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.² Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.³ Noneffectiveness for individual external causes not tabulated.

TABLE 71.—Admissions to sick report, discharges, deaths, and noneffectiveness, with continental, excluding

Serial No.	International classification.	Causes of admission to sick report.	United States, total enlisted men, white and colored.									
			S. G. O., 61,410—A. G. O., 61,410.									
			Admissions.		Discharges.			Deaths.			Noneffective.	
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
1	1	Typhoid fever.....	13	0.21				1	1	0.02	2.42	0.04
2	1a	Paratyphoid fever.....	19	.31							2.98	.05
7-11	4	Malaria.....	769	12.52				1	1	.02	20.54	.33
7		Autumnal fever.....	55	.90				1	1	.02	2.01	.03
8		Malarial cachexia.....	1	.02							.72	.01
9		Quartan malarial fever.....	11	.18							.29	.00
10		Tertian malarial fever.....	644	10.49							16.40	.27
11		Undetermined malarial fever.....	58	.94							1.11	.02
13	5b	Vaccinia.....	520	8.47							6.17	.10
14	6	Measles.....	1,246	20.28	2	2	.03	9	9	.15	52.88	.86
15	7	Scarlet fever.....	36	.59				2	2	.03	3.13	.05
17	9	Diphtheria.....	31	.50							1.61	.03
18	10	Infuenza.....	2,343	38.15				1	1	.02	33.49	.55
21-23	14	Dysentery.....	244	3.97	9	5	.08	7	7	.11	26.15	.43
21		Bacillary.....	32	.52							1.25	.02
22		Entamoebic.....	128	2.08	9	5	.08	6	6	.10	21.30	.35
23		Unclassified.....	84	1.37				1	1	.02	3.70	.06
27	18	Erysipelas.....	43	.70				1	1	.02	2.08	.03
29	19b	Dengue.....	645	10.50							8.55	.14
31	19d	German measles.....	11	.18								
34	19g	Mumps.....	201	3.27							9.14	.15
37	20	Purulent infection and septicaemia.....	7	.11				5	5	.08	.22	.00
42-46	25	Mycoses.....	6	.10							.47	.01
49-57	28-34	Tuberculosis, all.....	217	3.53	218	119	1.94	33	17	.28	162.15	2.64
49-51	28	Tuberculosis of lungs.....	198	3.22	207	114	1.86	31	15	.24	155.82	2.54
52	29	Miliary tuberculosis, acute.....									.17	.00
53-57	30-34	Tuberculosis of other organs.....	19	.32	10	5	.09	2	2	.03	6.16	.10
58	36	Scoliosis (rickets).....	3	.05	1	1	.02				.31	.01
59-74	37-38	Veneral diseases, all.....	5,603	91.23	158	100	1.63	9	9	.15	342.83	5.58
59-64	37	Syphilis.....	1,128	18.36	72	40	.65	8	8	.13	115.19	1.89
65-67	38a	Soft chancre.....	1,107	18.02							65.06	1.06
68-74	38b	Gonococcus infection.....	3,368	54.84	86	60	.98	1	1	.02	162.58	2.65
75-79	39-45	Cancer and other malignant tumors.....	17	.28	4	3	.05	13	8	.13	4.63	.08
80	46	Benign tumors.....	91	1.48	2						3.47	.06
81-85	47-48	Rheumatism, articular, all.....	414	6.74	18	11	.18	1	1	.02	31.32	.51
81-82	47	Acute articular rheumatism.....	306	4.98	3	2	.03	1	1	.02	21.89	.36
83-85	48	Chronic articular rheumatism.....	108	1.76	15	9	.15				9.43	.15
87-88	50	Diabetes.....	11	.18	9	7	.11	1	1	.02	2.22	.04
89	51	Exophthalmic goiter.....	16	.26	21	9	.15				4.42	.07
97-100	56	Alcoholism and results.....	784	12.77	13	9	.15	2	2	.03	13.62	.22
101-102	57-58	Chronic occupational poisoning.....	2	.03	1	1	.02				.22	.00
103-104	59	Other chronic poisoning, including drug habit.....	19	.31	3	1	.02				1.43	.02
106-106	60	Encephalitis.....										
107	61	Simple meningitis.....	1	.02	1	1	.02				.13	.00
108	61a	Epidemic cerebrospinal meningitis.....	18	.29	2	1	.02	9	9	.15	1.53	.02
109	62	Locomotor ataxia.....	12	.20	5	5	.08	1	1	.02	3.46	.06
110-115	63	Other diseases of spinal cord.....	5	.08	2	1	.02				.85	.01
116	64	Cerebral hemorrhage, apoplexy.....	2	.03				3	3	.05	.01	.00
117-119	66	Paralysis without specified cause.....	17	.28	3	1	.02				2.25	.04
120-126	67-68	Mental alienation.....	229	3.73	263	103	2.65	4	2	.03	61.70	1.00
127	69	Epilepsy.....	106	1.73	75	56	.91				9.73	.16
129-133	73	Neuralgia and neuritis.....	391	6.37	27	19	.31	1	1	.02	23.73	.39
138-141	75a	Follicular conjunctivitis.....	328	5.34	3	2	.03				7.30	.12
142	75b	Trachoma.....	11	.18	3	2	.03				.61	.01
166	77	Pericarditis.....	5	.08	1	1	.02	1	1	.02	.46	.01
167	78	Acute endocarditis.....	2	.03	1	1	.02				.42	.01
169-174	79	Organic heart disease.....	122	1.99	55	40	.65	15	15	.24	14.91	.24
175	80	Angina pectoris.....	7	.11	1	1	.02	1	1	.02	.58	.01

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

ratios per 1,000 of mean strength, for enlisted American troops serving in the United States, Alaska, for the year 1916.

United States, white, enlisted men.										United States, colored, enlisted men.									
S. G. O., 60,581—A. G. O., 60,581.										S. G. O., 829—A. G. O., 829.									
Admissions.		Discharges.		Deaths.		Noneffective.				Admissions.		Discharges.		Deaths.		Noneffective.			
Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.	Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
		(1)	(2)		(1)	(2)						(1)	(2)		(1)	(2)			
13	0.21				1	1.02		2.42	0.04										
19	.31							2.98	.05										
760	12.54				1	1.02		20.01	.33	9	10.56						0.52	0.63	
53	.87				1	1.02		1.77	.03	2	2.41						.24	.29	
1	.02							.72	.01										
11	.18							.29	.00										
638	10.53							16.14	.27	6	7.24						.26	.31	
57	.94							1.08	.02	1	1.21						.02	.03	
518	8.55							6.01	.10	2	.41						.16	.19	
1,212	20.50	2	2	.03	9	9.15		52.71	.87	4	4.83						.17	.20	
36	.59				2	2.03		3.13	.05										
28	.46							1.49	.02	3	3.62						.12	.14	
2,313	38.18				1	1.02		32.77	.54	30	36.19						.72	.87	
236	3.90	9	5	.08	7	7.12		24.48	.40	8	9.65						1.67	2.02	
32	.53							1.09	.02								.06	.08	
122	2.01	9	5	.08	6	6.10		19.80	.33	6	7.24						1.50	1.81	
82	1.35				1	1.02		3.59	.06	2	2.41						.11	.13	
39	.64				1	1.02		1.82	.03	4	4.83						.26	.32	
645	10.65							8.55	.14										
11	.18							.29	.00										
199	3.28							9.10	.15	2	2.41						.05	.06	
7	.12				5	5.08		.22	.00										
6	.10							.47	.01										
210	3.47	186	114	1.88	26	13.21		145.46	2.40	7	8.44	32	5	6.03	7	4	4.83	16.69	20.13
191	3.15	175	109	1.80	25	12.20		139.42	2.30	7	8.44	32	5	6.03	6	3	3.62	16.40	19.78
19	.32	10	5	.09	1	1.02		.17	.00										
3	.05	1	1	.02				5.18	.09						1	1	1.21	.28	.34
5,473	90.34	133	95	1.57	8	8.13		.31	.01										
1,090	17.99	62	39	1.64	7	7.12		326.04	5.38	130	156.82	25	5	6.03	1	1	1.21	16.80	20.26
1,092	18.02							107.61	1.78	38	45.84	10	1	1.21	1	1	1.21	7.58	9.14
3,291	54.32	71	56	.92	1	1.02		63.57	1.05	15	18.09						1.49	1.80	
17	.28	4	3	.05	13	8.13		154.86	2.56	77	92.88	15	4	4.83			7.73	9.32	
91	1.50	1						4.45	.07								.18	.21	
405	6.69	15	11	.18	1	1.02		3.39	.06								.08	.10	
299	4.94	2	2	.03	1	1.02		28.53	.48	9	10.86	3					2.78	3.36	
106	1.75	13	9	.15				19.72	.33	7	8.44	1					2.17	2.62	
10	.17	8	7	.12	1	1.02		8.81	.15	2	2.41	2					.61	.74	
15	.25	20	8	.13				2.03	.03	1	1.21	1	1	1.21			.19	.23	
778	12.84	12	9	.15	2	2.03		4.05	.07	1	1.21	1	1	1.21			.37	.45	
2	.03	1	1	.02				13.43	.22	6	7.24	1					.19	.23	
19	.31	3	1	.02				.22	.00										
1	.02	1	1	.02				1.43	.02										
18	.30	2	1	.02	9	9.15		.13	.00										
12	.20	5	5	.08	1	1.02		1.53	.03										
5	.08	2	1	.02				3.46	.06										
2	.03				3	3.05		.85	.01										
17	.28	2						.01	.00										
226	3.73	250	162	2.67	4	2.03		2.24	.04			1	1	1.21			.01	.01	
106	1.75	75	56	.92				58.00	.96	3	3.62	13	1	1.21			3.60	4.46	
386	6.37	27	19	.31	1	1.02		9.58	.16								.15	.18	
326	5.38	3	2	.03				22.93	.38	5	6.03						.80	.96	
11	.18	3	2	.03				7.22	.12	2	2.41						.08	.09	
5	.09	1	1	.02	1	1.02		.61	.01										
2	.03	1	1	.02				.46	.01										
118	1.95	51	39	.64	15	15.25		.42	.01										
7	.12	1	1	.02	1	1.02		13.36	.22	4	4.83	4	1	1.21			1.55	1.87	
								.58	.01										

* Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 71.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with continental, excluding*

Serial Nos.	International classification.	Causes of admission to sick report.	United States, total enlisted men, white and colored.									
			S. G. O., 61,410—A. G. O., 61,410.									
			Admissions.		Discharges.			Deaths.			Noneffective.	
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.	15	0.24	5	2	0.03	4	4	0.07	2.02	0.03
178-179	82	Embolism and thrombosis	3	.05	1	1	.02	1	1	.02	.37	.01
181	83b	Hemorrhoids	413	6.72	1	1	.02				15.66	.26
183	83d	Varicose veins	50	.81	12	4	.07				4.16	.07
184	83e	Varicocele	133	2.17	1	1	.02				6.58	.11
185-187	84	Diseases of the lymphatic system	425	6.92							27.80	.45
193-199	86	Diseases of the nasal fossæ	952	15.50	2	2	.03				14.95	.24
200-202	87	Diseases of the larynx	156	2.54	1	1	.02	1	1	.02	2.77	.05
203-204	88	Diseases of the thyroid body	16	.26	8	5	.08				2.41	.04
205-206	89-90	Bronchitis	2,266	36.89	5	5	.08				41.00	.67
207	91	Broncho-pneumonia	37	.60				7	7	.11	3.16	.05
208	92	Pneumonia	159	2.59	3	2	.03	20	19	.31	12.77	.21
209-215	93	Pleurisy	194	3.16	8	2	.03				14.86	.24
216-217	94	Pulmonary congestion and pulmonary apoplexy	2	.03				2	2	.03	.03	.00
219	96	Asthma	70	1.14	12	10	.16				4.76	.08
220	97	Pulmonary emphysema	2	.03	1	1	.02				.04	.00
221	98a	Hæmoptysis	5	.06							.12	.00
222	98b	Hay fever	3	.05							.26	.00
224-227	99a	Diseases of the teeth and gums	338	5.50							7.34	.12
228-231	99b	Other diseases of mouth and annexa	61	.99							1.77	.03
232-236	100	Diseases of the pharynx	4,039	65.77							58.89	.96
238	102	Ulcer of stomach	19	.31	3	2	.03	1	1	.02	2.26	.04
239-244	103	Other diseases of stomach (cancer excepted)	701	11.41	11	9	.15				17.58	.29
245-253	105	Diarrhea and enteritis	2,348	38.23	4	3	.05	1	1	.02	31.26	.51
254	106	Ankylostomiasis	23	.37							1.13	.02
255-259	107	Intestinal parasites	77	1.25							1.26	.02
260	108	Appendicitis	590	9.61	3	3	.05	11	11	.18	45.10	.73
261-263	109	Hernia	313	5.10	36	28	.46	2	2	.03	36.80	.60
264-267	110a	Diseases of the anus and fecal fistula	35	.57							3.04	.05
268-272	110b	Other diseases of the intestines	1,612	26.25	19	11	.18				25.42	.41
275	119	Cirrhosis of liver	8	.13	1	1	.02	1	1	.02	.83	.01
276	114	Biliary calculi	12	.20							1.58	.03
277-281	115	Other diseases of liver and gall bladder	242	3.94	3	2	.03	3	3	.05	11.07	.18
283-284	117	Simple peritonitis	3	.05				3	3	.05	.33	.01
288	119	Acute nephritis	23	.37				5	5	.08	1.50	.02
289-291	120	Bright's disease	37	.60	18	9	.15	10	8	.13	8.90	.14
293-299	122	Other diseases of the kidney and annexa	43	.70	6	6	.10	2	1	.02	5.91	.10
303-306	124	Diseases of the bladder	170	2.77	20	22	.36				7.44	.12
304	124b	Enuresis										
307-309	125	Diseases of the urethra, urinary abscess, etc.	90	1.47							2.41	.04
310-312	126	Diseases of the prostate	8	.13							.36	.01
313-319	127	Diseases of the male genital organs (nonvenereal)	276	4.49	3	1	.02				10.51	.17
322-323	143	Furuncle and carbuncle	925	15.05							16.50	.27
324-325	144	Acute abscess and cellulitis	900	14.66							25.33	.41
352-357	146	Diseases of the bones	136	2.21	11	6	.10				15.17	.25
358-360	147	Diseases of the joints	263	4.28	38	21	.34				24.52	.40
367	147g	Flat foot										
372	150	Congenital malformations	185	3.01	3	2	.03				7.18	.12
373-374	154	Senility	2	.03							.07	.00
375	180Aa	Febricula, simple continued, and other fevers of undetermined causation	266	4.33							5.10	.08
379	180Ba	Under observation, undiagnosed and unknown	53	.86	1	1	.02	4	4	.07	2.78	.05
380	180Bb	Malingering	28	.46							1.55	.03

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

ratios per 1,000 of mean strength for enlisted American troops serving in the United States, Alaska, for the year 1916—Continued.

United States, white, enlisted men.												United States, colored, enlisted men.											
S. G. O., 60,581—A. G. O., 60,581.												S. G. O., 829—A. G. O., 829.											
Admissions.		Discharges.				Deaths.				Noneffective.		Admissions.		Discharges.				Deaths.				Noneffective.	
Number.	Ratio.	Number.		Ratio.		Number.		Ratio.		Number.	Ratio.	Number.	Ratio.	Number.		Ratio.		Number.		Ratio.		Number.	Ratio.
		(1)	(2)			(1)	(2)							(1)	(2)			(1)	(2)				
14	0.23	5	2	0.03		4	4	0.07		1.59	0.03											0.43	0.52
3	.05					1	1	.02		.37	.01											1.55	1.87
401	6.62	1	1	.02						14.11	.23	12	14.48										
50	.83	12	4	.07						4.16	.07												
132	2.18	1	1	.02						6.57	.11	1	1.21									.01	.01
424	7.00									27.49	.45	1	1.21									.31	.38
945	15.60	2	2	.03						14.78	.24	7	8.44									.17	.21
155	2.56	1	1	.02		1	1	.02		2.76	.05	1	1.21									.01	.01
16	.26	8	5	.08						2.41	.04												
2,240	36.98	5	5	.08						40.26	.66	26	31.36									.74	.89
37	.61					7	7	.12		3.16	.05												
157	2.59	3	2	.03		20	19	.31		12.18	.20	2	2.41									.59	.71
188	3.10	8	2	.03						13.78	.23	6	7.24									1.08	1.30
2	.03					2	2	.03		.03	.00												
68	1.12	12	10	.17						4.69	.08	2	2.41									.07	.08
2	.03	1	1	.02						.04	.00												
5	.08									.12	.00												
3	.05									.26	.00												
332	5.48									6.88	.11	6	7.24									.46	.56
59	.97									1.72	.03	2	2.41									.05	.06
3,903	64.43									56.13	.93	139	164.05									2.76	3.33
19	.31	3	2	.03		1	1	.02		2.20	.04											.05	.06
692	11.42	11	9	.15						17.25	.28	9	10.86									.34	.41
2,329	38.44	4	3	.05		1	1	.02		30.76	.51	19	22.92									.50	.60
23	.38									1.13	.02												
77	1.27									1.26	.02												
586	9.67	3	3	.05		11	11	.18		44.25	.73	4	4.83									.85	1.02
308	5.08	34	27	.45		2	2	.03		34.84	.58	5	6.03	2	1	1.21						1.96	2.36
34	.56									2.86	.05	1	1.21									.19	.22
1,579	26.06	18	10	.17						24.71	.41	33	39.81	1	1	1.21						.70	.85
8	.13	1	1	.02						.83	.01						1	1	1.21				
12	.20									1.46	.02											.12	.15
239	3.94	3	2	.03		3	3	.05		10.85	.18	3	3.62									.22	.26
3	.05					3	3	.05		.33	.01												
21	.35					4	4	.07		1.37	.02	2	2.41				1	1	1.21			.13	.16
36	.59	17	9	.15		8	7	.12		8.44	.14	1	1.21	1	1	1.21	2	1	1.21			.46	.55
43	.71	6	6	.10		2	1	.02		5.91	.10												
164	2.71	26	20	.33						7.10	.12	6	7.34	3	2	2.41						.34	.41
89	1.47									2.38	.04	1	1.21									.03	.03
8	.13									.36	.01												
271	4.47	2	1	.02						9.74	.16	5	6.03	1	1	1.21						.77	.93
920	15.19									16.37	.27	5	6.03									.12	.15
892	14.73									24.89	.41	8	9.65									.44	.54
132	2.18					6	10			13.69	.23	4	4.83	2	2	2.41						1.48	1.79
252	4.16	34	20	.33						22.55	.37	11	13.27	4	1	1.21						1.97	2.38
185	3.05	3	2	.03						7.07	.12											.11	.13
1	.02									.06	.00	1	1.21									.01	.01
260	4.20									4.90	.08	6	7.24									.20	.24
53	.87	1	1	.02		4	4	.07		2.46	.04											.32	.38
27	.45									1.46	.02	1	1.21									.09	.11

* Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

TABLE 71.—Admissions to sick report, discharges, deaths, and noneffectiveness, with continental, excluding

Serial Nos.	International classification.	Causes of admission to sick report.	United States, total enlisted men, white and colored.									
			S. G. O., 61,410—A. G. O., 61,410.									
			Admissions.		Discharges.		Deaths.		Noneffective.			
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹												
426-434	155-163	Suicides, all.....	5	0.08					36	35	0.57	
435	164	Poisoning by food.....	44	.72								
436	165a	Venomous bites and stings.....	45	.73								
437	165b	Other poisoning (deleterious gases excepted).....	34	.55					4	4	.07	
438	166	Conflagration.....										
439	167	Burns (conflagration excepted).....	228	3.71					1	1	.02	
440	168	Absorption of deleterious gases.....							1	1	.02	
441	168a	Suffocation, strangulation.....	1	.02								
442	169	Drowning, accidental.....							21	21	.34	
443	170	Traumatism by firearms (other than specified).....	260	4.23	47	35	0.57	18	18	.29		
444	170a	Shot by sentry or guard.....	3	.05	2	1	.02	3	3	.05		
445	171	Traumatism by cutting or piercing instruments.....	831	13.53	10	9	.15					
446	172	Traumatism by fall.....	2,054	33.44	44	23	.37	6	6	.10		
447	173	Traumatism in mines and quarries.....										
448	174	Traumatism by machines.....	33	.54	2	2	.03					
449	175	Traumatism by other crushing.....	568	9.25	34	24	.39	17	17	.28		
450	176	Injuries by animals.....	744	12.11	2	1	.02	3	3	.05		
451	177	Starvation.....										
452	178	Effects of excessive cold.....	14	.23								
453	179	Effects of heat.....	107	1.74				2	2	.03		
454	180	Effects of lightning.....						1	1	.02		
455	181	Effects of electricity.....	1	.02				1	1	.02		
456-458	182-4	Homicides, all.....	5	.08				16	16	.26		
459	185	Fractures, causes not specified.....	2	.03								
460	186	Other external violence.....	3,009	49.00	25	12	.20	6	6	.10		
462-466		Killed or wounded in action.....	9	.15	4	1	.02	10	9	.15		
462		By bullet.....	9	.15	4	1	.02	10	9	.15		
DISEASES AND INJURIES GROUPED.												
		General diseases.....	13,758	224.04	463	269	4.38	86	65	1.06	744.38 12.12	
1-19		Epidemic diseases.....	6,452	105.06	11	7	.11	22	22	.36	173.92 2.83	
20-59		Other general diseases.....	7,306	118.96	452	262	4.27	64	43	.70	570.46 9.29	
		Diseases of the nervous system and organs of special sense.....	1,989	32.38	464	307	5.00	18	15	.24	160.23 2.61	
60-74		Of the nervous system.....	938	15.27	407	260	4.23	18	15	.24	114.22 1.86	
75		Of the eye and its annexa.....	630	10.26	32	25	.41				26.14 .43	
76		Of the ear and its annexa.....	421	6.85	25	22	.36				19.87 .32	
77-85		Diseases of the circulatory system.....	1,294	21.07	84	55	.90	22	22	.36	78.11 1.27	
86-98		Diseases of the respiratory system.....	3,872	63.05	40	28	.46	31	30	.49	97.23 1.58	
99-118		Diseases of the digestive system.....	10,426	169.77	82	60	.98	23	22	.36	246.87 4.02	
119-127		Diseases of the genito-urinary system.....	688	11.20	60	41	.67	17	14	.23	39.06 .64	
128-145		Diseases of the skin and cellular tissue.....	3,240	52.76	11	6	.10				83.35 1.36	
146-149		Diseases of the organs of locomotion.....	1,768	28.79	209	129	2.10				101.39 1.66	
150		Malformations, etc.....	185	3.01	3	2	.03				7.18 .12	
154		Diseases, results of old age.....	2	.03							.07 .00	
189		Ill-defined diseases.....	395	6.43	1	1	.02	4	4	.07	10.22 .17	
		Total for disease.....	37,615	612.52	1,417	897	14.64	201	172	2.80	1,568.09 25.53	
155-186		External causes.....	8,159	132.86	208	132	2.15	147	143	2.33	315.62 5.14	
		Total for disease and external causes.....	45,774	745.38	1,625	1,029	16.76	348	315	5.13	1,883.71 30.67	

¹ Including those occurring in the United States proper from commands on duty in Alaska or insular possessions.

ratios per 1,000 of mean strength, for enlisted American troops serving in the United States, Alaska, for the year 1916—Continued.

United States, white, enlisted men.										United States, colored, enlisted men.									
S. G. O., 60,581—A. G. O., 60,581.										S. G. O., 829—A. G. O., 829.									
Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.	
Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.	Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
		(1)	(2)		(1)	(2)						(1)	(2)		(1)	(2)			
5	0.08				35	34	0.56			1	1.21				1	1	1.21		
43	.71																		
45	.74									1	1.21								
33	.54				4	4	.07												
										2	2.41								
					1	1	.02												
1	.02				21	21	.35												
257	4.24	43	33	0.54	18	18	.30			3	3.62	4	2	2.41					
3	.05	2	1	.02	3	3	.06			17	20.51	1							
814	13.44	9	9	.15															
2,020	33.34	38	22	.36	6	6	.10			34	41.01	6	1	1.21					
23	.54	1	1	.02								1	1	1.21					
560	9.24	34	24	.40	17	17	.28			8	9.65								
738	12.18	2	1	.02	3	3	.06			6	7.24								
										2	2.41								
12	.20				2	2	.03												
107	1.77				1	1	.02												
1	.02				1	1	.02												
5	.08				14	14	.23								2	1	1.21		
2	.03																		
2,970	49.03	22	12	.20	6	6	.10			39	47.04	3							
9	.15	2			10	9	.15					2	1	1.21					
9	.15	2			10	9	.15					2	1	1.21					
13,536	223.44	399	253	4.26	78	60	.99	703.23	11.61	222	267.79	64	11	13.27	8	5	6.03	41.15	49.63
6,885	106.40	11	7	.12	22	22	.36	170.06	2.81	67	80.82							3.85	4.65
7,151	118.04	388	251	4.14	56	38	.63	533.17	8.80	156	186.97	64	11	13.27	8	5	6.03	37.29	44.98
1,963	32.41	448	305	5.03	18	15	.25	152.82	2.53	26	31.36	16	3	3.62				7.42	8.95
926	15.29	392	254	4.26	18	15	.25	108.90	1.80	12	14.48	15	2	2.41				5.32	6.42
621	10.25	31	25	.41				24.77	.41	9	10.85	1						1.37	1.66
416	6.87	25	22	.36				19.15	.32	5	6.03							.72	.87
1,274	21.03	80	54	.89	22	22	.36	74.24	1.23	20	24.13	4	1	1.21				3.87	4.66
3,828	63.19	40	28	.46	31	30	.50	94.58	1.56	44	53.08							2.66	3.20
10,208	168.50	79	58	.96	22	22	.36	235.66	3.94	218	262.97	3	2	2.41	1			8.20	9.59
672	11.09	55	39	.64	14	12	.20	37.32	.62	16	19.30	5	2	2.41	3	2	2.41	1.74	2.10
3,218	53.12	11	6	.10				82.48	1.36	22	26.54							.86	1.04
1,724	28.46	195	125	2.06				95.60	1.58	44	53.08	14	4	4.83				5.79	6.99
185	3.05	3	2	.03				7.07	.12									.11	.13
1	.02							.06	.00	1	1.21							.01	.01
387	6.39	1	1	.02	4	4	.07	9.62	.16	8	9.65							.61	.74
36,995	610.67	1,311	875	14.44	189	165	2.72	1,495.68	24.69	620	747.89	106	22	26.54	12	7	8.44	72.40	87.34
8,041	132.73	191	128	2.11	143	141	2.33	304.70	5.03	118	142.34	17	4	4.83	4	2	2.41	10.92	13.18
45,036	743.40	1,502	1,003	16.56	332	306	5.05	1,800.38	29.72	738	890.23	123	26	31.36	16	9	10.86	83.33	100.52

* Excluding those occurring in the United States proper from commands on duty in Alaska or insular possessions.

* Noneffectiveness for individual external causes not tabulated.

TABLE No. 71½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with grand total,

Serial Nos.	International classification.	Philippine Islands, officers.									
		Mean strength.....	S. G. O., 664—A. G. O., 738.								
		Causes of admission to sick report.	Admissions.		Discharges.		Deaths.		Non-effective.		
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	
			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	
7-11	4	Malaria.....	17	25.60					0.30	0.44	
7		Zestivo-autumnal fever.....	5	7.53					.10	.15	
8		Malarial cachexia.....									
9		Quartan malarial fever.....									
10		Tertian malarial fever.....	11	16.57					.18	.27	
11		Undetermined malarial fever.....	1	1.51					.01	.02	
12	5	Smallpox and varioloid.....									
13	5b	Vaccinia.....									
14	6	Measles.....									
17	9	Diphtheria.....									
18	10	Indinensa.....	14	21.08					.14	.22	
19	12	Asiatic cholera.....									
21-23	14	Dysentery.....	14	21.08					1.35	2.03	
21		Bacillary.....									
22		Entamoebic.....	14	21.08					1.35	2.03	
23		Unclassified.....									
27	18	Erysipelas.....									
29	19b	Dengue.....	15	22.59					.22	.33	
31	19d	German measles.....									
34	19c	Mumps.....	2	3.01					.06	.09	
37	20	Purulent infection and septicæmia.....									
41	24	Tetanus.....									
48	27	Beriberi.....									
49-57	28-34	Tuberculosis, all.....	4	6.02					.16	.23	
49-51	28	Tuberculosis of lungs.....	4	6.02					.16	.23	
52	29	Miliary tuberculosis, acute.....									
53-57	30-34	Tuberculosis of other organs.....	4	6.02					.09	.14	
59-74	37-38	Veneral diseases, all.....	4	6.02					.09	.14	
59-64	37	Syphilis.....	4	6.02					.09	.14	
65-67	38a	Soft chancre.....									
68-74	38b	Gonococcus infection.....									
75-79	39-45	Cancer and other malignant tumors.....									
80	46	Benign tumors.....									
81-85	47-48	Rheumatism, articular, all.....	3	4.52					.05	.08	
81-82	47	Acute articular rheumatism.....	1	1.51					.01	.01	
83-85	48	Chronic articular rheumatism.....	2	3.01					.05	.07	
87-88	50	Diabetes.....									
89	51	Exophthalmic goiter.....									
97-100	56	Alcoholism and results.....	3	4.52					.02	.03	
101-102	57-58	Chronic occupational poisoning.....									
108-104	59	Other chronic poisoning, including drug habit.....									
108	61a	Epidemic cerebrospinal meningitis.....									
109	62	Locomotor ataxia.....									
110-115	63	Other diseases of spinal cord.....									
116	64	Cerebral hemorrhage, apoplexy.....									
117-119	66	Paralysis without specified cause.....									
120-126	67-68	Mental alienation.....	1	1.51					.13	.20	
127	69	Epilepsy.....									
129-133	73	Neuralgia and neuritis.....	5	7.53					.07	.11	
138-141	75a	Follicular conjunctivitis.....	2	3.01					.01	.02	
142	75b	Trachoma.....									
166	77	Pericarditis.....									
167	78	Acute endocarditis.....									
169-174	79	Organic heart disease.....	1	1.51					.04	.06	
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.....							.03	.06	
178-179	82	Embolism and thrombosis.....									
181	83b	Hemorrhoids.....	5	7.53					.17	.25	
183	83d	Varicose veins.....									

1 Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for the Philippine Islands, officers, total enlisted, and year 1916.

Philippine Islands, total enlisted (including Philippine Scouts).										Philippine Islands, total officers and enlisted men (including scouts).									
S. G. O., 17,159—A. G. O., 17,159.										S. G. O., 17,823—A. G. O., 17,997.									
Admissions.		Discharges.		Deaths.		Non-effective.				Admissions.		Discharges.		Deaths.		Non-effective.			
Number.	Ratio.	Number.		Number.		Number.	Ratio.			Number.	Ratio.	Number.		Number.		Number.	Ratio.		
		(1)	(2)	(1)	(2)							(1)	(2)	(1)	(2)				
971	56.59					25.50	1.49	988	55.43							25.80	1.45		
275	16.03					8.67	.51	280	15.71							8.77	.49		
4	.23					.54	.03	4	.22							.54	.03		
7	.41					.17	.01	7	.39							.17	.01		
658	38.35					15.58	.91	669	37.53							15.76	.88		
27	1.57					.55	.03	28	1.57							.56	.03		
9	.52			1	10.06	.65	.04	9	.50			1	1	0.06		.65	.04		
18	1.05					.27	.02	18	1.01							.27	.01		
18	1.05					1.22	.07	18	1.01							1.22	.07		
3	.17					.84	.05	3	.17							.84	.05		
142	8.28			1	1.06	2.64	.15	156	8.75			1	1	0.06		2.79	.16		
7	.41			1	1.06	.60	.03	7	.39			1	1	0.06		.60	.03		
166	9.67			1	1.06	10.44	.61	180	10.10			1	1	0.06		11.78	.66		
19	1.11					.98	.06	19	1.07							.98	.06		
133	7.75			1	1.06	9.07	.53	147	8.25			1	1	0.06		10.42	.58		
14	.82					.39	.02	14	.79							.39	.02		
2	.12	2	2	0.12		.14	.01	2	.11	2	2	0.11				.14	.01		
4	.23					.10	.01	4	.22							.10	.01		
204	11.89					3.71	.22	219	12.29							3.93	.23		
2	.12					.07	.00	2	.11							.07	.00		
62	3.61					2.97	.17	64	3.59							3.03	.17		
4	.23			1	1.06	.62	.04	4	.22			1	1	0.06		.62	.03		
1	.06					.16	.01	1	.06							.16	.01		
2	.12					.40	.02	2	.11							.40	.02		
68	3.96	16	42	2.45	2	6.28	.37	72	4.04	16	42	2.45	2	12	.66	6.44	.36		
65	3.79	16	41	2.39	2	5.85	.34	69	3.87	16	41	2.39	2	11	.61	6.00	.34		
1	.06					.10	.01	1	.06			1	0.06			.10	.01		
2	.12			1	0.06	.34	.02	2	.11			1	0.06			.34	.02		
2,058	119.94	3	17	.99	1	99.98	5.83	2,062	115.69	3	17	.99	1	1	0.06	100.07	5.61		
442	25.76	1	8	.47	1	27.33	1.59	446	25.02	1	8	.47	1	1	0.06	26.43	1.54		
422	24.59					14.54	.85	422	23.67							14.54	.82		
1,194	69.58	2	9	.52		58.11	3.39	1,194	66.99	2	9	.52				58.11	3.26		
10	.58			3	6	1.63	.09	10	.56			3	6	.33		1.63	.09		
28	1.63					1.78	.10	28	1.57							1.78	.10		
64	3.73	2	.12			3.17	.18	67	3.76	2	.12					3.23	.18		
47	2.74					2.12	.12	48	2.69							2.12	.12		
17	.99	2	.12			1.06	.06	19	1.07	2	.12					1.11	.06		
2	.12			1	1.06	.04	.00	2	.11			1	1	0.06		.04	.00		
2	.12	3	.17			.37	.02	2	.11	3	.17					.37	.02		
188	10.96	1	0.06			2.90	.17	191	10.72	1	0.06					2.92	.16		
1	.06					.02	.00	1	.06							.02	.00		
3	.17					.05	.00	3	.17							.05	.00		
3	.17			2	2	.17	.01	3	.17			2	2	.11		.17	.01		
2	.12					.02	.00	2	.11							.02	.00		
2	.12					.61	.04	2	.11							.61	.03		
1	.06			1	1.06	.01	.00	1	.06			1	1	0.06		.01	.00		
2	.12					.17	.01	2	.11							.17	.01		
55	3.21	4	42	2.45	1	5.83	.34	56	3.14	4	42	2.45	1	0.06		5.96	.33		
10	.58					.55	.03	10	.56			4	.23			.55	.03		
76	4.43	2	.12			3.16	.18	81	4.54	2	.12					3.23	.18		
123	7.17					2.12	.12	125	7.01							2.13	.12		
5	.29					.21	.01	5	.28							.21	.01		
1	.06					.11	.01	1	.06							.11	.01		
3	.17					.26	.02	3	.17	1	0.06					.26	.01		
26	1.52	1	6	.35	2	2.34	.14	27	1.51	1	6	.35	2	2	.11	2.38	.13		
3	.17					.15	.01	3	.17							.18	.01		
1	.06					.06	.00	1	.06							.06	.00		
97	5.65					2.83	.17	102	5.72							3.00	.17		
15	.87	1	0.06			1.30	.08	15	.84	1	0.06					1.30	.07		

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE NO. 71½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with grand total, year

Serial Nos.	International classification.	Causes of admission to sick report.	Philippine Islands, officers.									
			S. G. O., 664—A. G. O., 738.									
			Admis- sions.		Discharges.		Deaths.		Non- effective.			
			Number.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.	Number.	Ratio.		
				(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	
184	83e	Varicocele.....	1	1.51						0.05	0.08	
185-187	84	Diseases of the lymphatic system.....										
193-199	86	Diseases of the nasal fossae.....	8	12.05						.06	.09	
200-202	87	Diseases of the larynx.....										
203-204	88	Diseases of the thyroid body.....										
205-206	89-90	Bronchitis.....	22	33.13						.24	.36	
207	91	Broncho-pneumonia.....										
208	92	Pneumonia.....										
209-215	93	Pleurisy.....	1	1.51						.07	.11	
216-217	94	Pulmonary congestion and pul- monary apoplexy.....										
219	96	Asthma.....	1	1.51						.25	.37	
220	97	Pulmonary emphysema.....										
221	98a	Haemoptysis.....										
222	98b	Hay fever.....	1	1.51						.00	.00	
224-227	99a	Diseases of the teeth and gums.....	8	12.05						.06	.09	
228-231	99b	Other diseases of the mouth and annexa.....	3	4.52						.10	.16	
232-236	100	Diseases of the pharynx.....	15	22.59						.23	.34	
238	102	Ulcer of stomach.....										
239-244	103	Other diseases of stomach (cancer excepted).....	8	12.05						.21	.32	
245-253	105	Diarrhea and enteritis.....	39	58.73						1.08	1.63	
254	106	Ankylostomiasis.....										
255-259	107	Intestinal parasites.....	1	1.51						.01	.01	
260	108	Appendicitis.....	4	6.02						.21	.32	
261-263	109	Hernia.....	1	1.51						.09	.14	
264-267	110a	Diseases of the anus and fecal fistula.....										
268-272	110b	Other diseases of the intestines.....	24	36.14						.26	.40	
276	114	Biliary calculi.....	1	1.51						.01	.01	
277-281	115	Other diseases of liver and gall bladder.....	2	3.01						.20	.31	
288-284	117	Simple peritonitis.....										
288	119	Acute nephritis.....										
289-291	120	Bright's disease.....	1	1.51						.01	.02	
293-299	122	Other diseases of the kidney and annexa.....	1	1.51						.07	.11	
303-306	124	Diseases of the bladder.....	2	3.01						.01	.02	
304	124b	Enuresis.....										
307-309	125	Diseases of the urethra, urinary abscess, etc.....	2	3.01						.05	.07	
310-312	126	Diseases of the prostate.....	2	3.01						.10	.15	
313-319	127	Diseases of the male genital organs (nonvenereal).....	2	3.01						.04	.06	
322-323	143	Furuncle and carbuncle.....	2	3.01						.03	.05	
324-325	144	Acute abscess and cellulitis.....	10	15.06						.31	.47	
352-357	146	Diseases of the bones.....	5	7.53						.30	.45	
358-360	147	Diseases of the joints.....	2	3.01						.16	.24	
367	147g	Flat foot.....										
372	150	Congenital malformations.....										
375	189Aa	Febricula, simple continued, and other fevers of undetermined causation.....	3	4.62						.03	.05	
379	189Ba	Under observation, undiagnosed, and unknown.....										
380	189Bb	Malingering.....										

1 Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for the Philippine Islands, officers, total enlisted, and 1916—Continued.

Philippine Islands, total enlisted (including Philippine Scouts.)										Philippine Islands, total officers and enlisted men (including scouts.)									
S. G. O., 17,159—A. G. O., 17,159.										S. G. O., 17,823—A. G. O., 17,997.									
Admissions.		Discharges.		Deaths.		Non-effective.				Admissions.		Discharges.		Deaths.		Non-effective.			
Number.	Ratio.	Number.		Number.		Number.				Number.	Ratio.	Number.		Number.		Number.			
		(1)	(2)	(1)	(2)	(1)	(2)					(1)	(2)	(1)	(2)	(1)	(2)		
40	2.33					1.93	0.11	41	2.30							1.99	0.11		
120	6.99					5.25	.31	120	6.73							5.25	.29		
228	13.29					3.02	.18	236	13.24							3.08	.17		
12	.70					.21	.01	12	.67							.21	.01		
6	.35					.40	.02	6	.34							.40	.02		
601	35.03					12.80	.75	623	34.95							13.03	.73		
5	.29			1	1.06	.30	.02	5	.28					1	1.06	.30	.02		
22	1.28			1	2.12	1.54	.09	22	1.23					1	2.11	1.54	.09		
59	3.44	1	0.06			3.81	.22	60	3.37	1	0.06					3.89	.22		
8	.47			2	2.12	.18	.01	8	.45					2	2.11	.18	.01		
20	1.17	1	.06			1.23	.07	21	1.18	1	0.06					1.48	.08		
						.20	.01									.20	.01		
3	.17					.17	.01	3	.17							.17	.01		
								1	.06							.00	.00		
62	3.61					1.19	.07	70	3.93							1.25	.07		
22	1.28					.41	.02	25	1.40							.51	.03		
629	36.06					9.80	.57	644	36.16							10.02	.56		
2	.12					.11	.01	2	.11							.11	.01		
221	12.88	1	.06			3.50	.21	229	12.85	1	.06					3.80	.21		
776	45.22			1	1.06	9.15	.53	815	45.73			1	1.06			10.24	.57		
28	1.63					.06	.06	28	1.57							.06	.05		
34	1.98					.60	.03	35	1.96							.61	.03		
162	9.44			2	2.12	9.94	.58	166	9.31			2	2.11			10.15	.57		
55	3.21	1	2.12	1	1.06	4.80	.28	56	3.14	1	2.12	1	1.06			4.89	.27		
18	1.05					.50	.03	18	1.01							.50	.03		
723	42.14	1	.5	.29	1.06	9.14	.53	747	4.91	1	.5	.29	1.06			9.41	.53		
3	.17					.29	.02	4	.22							.30	.02		
83	4.84	1	2.12	1	1.06	3.31	.19	85	4.77	1	2.12	1	1.06			3.51	.20		
2	.12					.07	.01	2	.11							.07	.00		
26	1.52			1	1.06	1.12	.07	26	1.46			1	1.06			1.12	.06		
16	.93	2	.12	1	1.06	1.44	.08	17	.95	2	.12	1	1.06			1.45	.08		
16	.58					.88	.05	11	.62					1	1.06	.95	.05		
21	1.22	1	.06			.90	.05	23	1.29	1	.06					.91	.05		
8	.47	1	.06			.35	.02	8	.45	1	.06					.35	.02		
26	1.52					.37	.02	28	1.57							.42	.02		
1	.06					.01	.00	3	.17							.11	.01		
66	3.85					2.10	.12	68	3.82							2.14	.12		
227	13.23					4.13	.24	229	12.85							4.16	.23		
331	19.29	1	1.06			9.63	.56	341	19.13	1	1.06					9.95	.56		
36	2.10					1.75	.10	41	2.30							2.05	.11		
44	2.56	1	.7	.41		3.46	.20	46	2.58	1	.7	.41				3.62	.20		
67	3.90	1	2.28			3.32	.19	67	3.76	1	2.28	3.76				3.32	.19		
82	4.78	1	.06			2.59	.15	82	4.60	1	.06					2.59	.15		
90	5.25					2.20	.13	93	5.22							2.23	.13		
15	.87					1.02	.06	15	.81							1.02	.06		
3	.17					.20	.01	3	.17							.20	.01		

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE NO. 71½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with grand total, year

Serial Nos.	International classification.		Philippine Islands, officers.							
		Mean strength.....	S. G. O., 664—A. G. O., 738.							
		Causes of admission to sick report.	Admissions.		Discharges.		Deaths.		Non-effective.	
			Number.	Ratio.	Number.		Number.		Number.	Ratio.
					(1)	(2)	(1)	(2)		
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹										
426-434	155-163	Suicides, all.....								
435	164	Poisoning by food.....	3	4.52						
436	165a	Venomous bites and stings.....								
437	165b	Other poisoning (deleterious gases excepted).....								
439	167	Burns (conflagrations excepted).....	1	1.51						
442	169	Drowning, accidental.....								
443	170	Traumatism by firearms (other than specified).....								
445	171	Traumatism by cutting or piercing instruments.....	2	3.01						
446	172	Traumatism by fall.....	17	25.60						
447	173	Traumatism in mines and quarries.....								
448	174	Traumatism by machines.....								
449	175	Traumatism by other crushing.....	1	1.51						
450	176	Injuries by animals.....	5	7.53						
451	177	Starvation.....								
453	179	Effects of heat.....	2	3.01						
455	181	Effects of electricity.....								
456-458	182-4	Homicides, all.....								
460	186	Other external violence.....	20	30.12						
DISEASES AND INJURIES GROUPED.										
		General diseases.....	76	114.46					2.39	3.60
	1-19	Epidemic diseases.....	62	93.37					2.07	3.11
	20-50	Other general diseases.....	14	21.08					.33	.49
		Diseases of the nervous system and organs of special sense.....	31	46.69					1.49	2.25
	60.74	Of the nervous system.....	20	30.12					.70	1.05
	75	Of the eye and its annexa.....	6	9.04					.59	.89
	76	Of the ear and its annexa.....	5	7.53					.21	.31
	77-85	Diseases of the circulatory system.....	8	12.05					.30	.44
	86-98	Diseases of the respiratory system.....	33	49.70					.62	.94
	99-118	Diseases of the digestive system.....	107	161.14					2.49	3.75
	119-127	Diseases of the genito-urinary system.....	10	15.06					.29	.43
	142-145	Diseases of the skin and cellular tissue.....	21	31.63					.54	.81
	146-149	Diseases of the organs of locomotion.....	14	21.08					.57	.86
	150	Malformations, etc.....								
	189	Ill-defined diseases.....	6	9.04					.07	.10
		Total for disease.....	306	460.84					8.77	13.20
	155-186	External causes.....	52	78.31					1.75	2.64
		Total for disease and external causes.....	358	539.16					10.52	15.84

¹ Number of discharges and deaths which actually occurred.² Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

ratios per 1,000 of mean strength, for the Philippine Islands, officers, total enlisted, and 1916—Continued.

Philippine Islands, total enlisted (including Philippine Scouts).										Philippine Islands, total officers and enlisted men (including scouts).									
S. G. O., 17,150—A. G. O., 17,159.										S. G. O., 17,823—A. G. O., 17,997.									
Admissions.		Discharges.		Deaths.		Non-effective.				Admissions.		Discharges.		Deaths.		Non-effective.			
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
106	6.18			7	0.41					1	0.06			7	0.40				
22	1.28									109	6.12								
3	.17									22	1.23								
46	2.68									3	.17								
				4	.23					47	2.64			4	.22				
31	1.81			1	1.06					31	1.74			1	1.06				
193	11.25									195	10.94								
381	22.20	3	0.52	1	1.06					398	22.33	3	0.52	1	1.06				
1	.06			1	1.06					1	.06			1	1.06				
16	.93									16	.90				.06				
142	8.28	2	.12	6	.35					143	8.02	2	.12	6	.33				
117	6.82									122	6.85								
1	.06									1	.06								
38	2.21									40	2.24								
1	.06									1	.06								
2	.12			2	.12					2	.11			2	.12				
730	42.54	4	.23							750	42.06	4	.23						
4,082	237.89	23	69	4.02	11	24	1.40	169.84	9.90	4,158	233.29	23	69	4.02	11	24	1.33	172.24	9.06
1,646	95.98	4	4	.23	3	3	.17	51.41	3.00	1,708	95.83	4	4	.23	3	3	.17	53.48	3.00
2,436	141.97	19	65	3.79	8	21	1.22	118.44	6.90	2,450	137.47	19	65	3.79	8	21	1.16	118.76	6.66
603	35.14	8	58	3.38	3	4	.23	24.12	1.31	634	35.57	8	58	3.38	3	4	.22	25.61	1.43
226	13.17	4	53	3.09	3	4	.23	15.21	.89	246	13.80	4	53	3.09	3	4	.22	15.91	.89
250	14.57	2	3	.17				5.67	.33	256	14.36	2	3	.17				6.27	.35
127	7.40	2	2	.12				3.23	.19	132	7.41	2	2	.12				3.44	.19
325	18.94	1	7	.41	3	3	.17	14.80	.86	333	18.68	1	7	.41	3	3	.17	15.00	.85
970	56.53	2	12	.4	5	5	.29	23.97	1.40	1,003	56.28	2	12	.4	5	5	.28	24.59	1.28
2,821	164.40	2	10	.58	6	6	.35	53.87	3.14	2,928	164.28	2	10	.58	6	6	.33	56.36	3.16
171	9.97		3	.17	1	3	.17	7.35	.43	181	10.16		3	.17	1	3	.17	7.63	.43
1,051	61.25	1	4	.23				30.91	1.80	1,072	60.15	1	4	.23				31.45	1.76
321	18.71	2	34	1.98				14.13	.82	335	18.80	2	34	1.98				14.71	.83
82	4.78		1	.06				2.59	.15	82	4.60		1	.06				2.59	.15
118	6.88							3.54	.21	124	6.96							3.61	.20
10,544	614.49	37	188	10.96	28	45	2.62	345.11	20.11	10,850	608.76	37	188	10.96	28	45	2.49	353.87	19.86
1,857	106.22	3	18	1.05	22	22	1.28	59.11	3.44	1,909	107.11	3	18	1.05	22	22	1.22	60.86	3.41
12,401	722.71	40	206	12.01	50	67	3.90	404.22	23.56	12,759	715.87	40	206	12.01	50	67	3.71	414.73	23.27

* Noneffectiveness for individual external causes not tabulated.

TABLE No. 72.—Admissions to sick report, deaths, discharges, and noneffectiveness, with men, while and

Serial Nos.	International classification.	Causes of admission to sick report.	Philippine Islands, total American, enlisted men, white and colored.									
			S. G. O., 11,580—A. G. O., 11,580.									
			Admissions.		Discharges.		Deaths.		Non-effective.			
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
			(1)	(2)		(1)	(2)		(1)	(2)		
7-11	4	Malaria.....	729	62.95							19.16	1.65
7		Estivo-autumnal fever.....	201	17.36							6.20	.51
8		Malarial cachexia.....	2	.17							.45	.04
9		Quartan malarial fever.....	4	.35							.10	.01
10		Tertian malarial fever.....	504	43.52							12.05	1.04
11		Undetermined malarial fever.....	18	1.55							.36	.03
12	5	Smallpox and varioloid.....										
13	5b	Vaccinia.....	10	.86							.14	.01
14	6	Measles.....	13	1.12							.87	.08
17	9	Diphtheria.....	3	.26							.84	.07
18	10	Influenza.....	121	10.45							2.42	.20
19	12	Asiatic cholera.....	5	.43							.47	.04
21-23	14	Dysentery.....	139	12.00			1	1	0.09		9.19	.79
21		Bacillary.....	6	.52							.20	.02
22		Entamebic.....	123	10.62			1	1	.09		8.66	.75
23		Unclassified.....	10	.86							.33	.03
27	18	Erysipelas.....	3	.26							.09	.01
29	19b	Dengue.....	142	12.26							2.26	.20
31	19d	German measles.....	2	.17							.07	.01
34	19g	Mumps.....	33	2.85							1.76	.15
37	20	Purulent infection and septicemia.....	2	.17			1	1	.09		.28	.02
40-57	28-34	Tuberculosis (all).....	51	4.40	26	2.25	1	1	.95		4.30	.37
40-51	28	Tuberculosis of lungs.....	48	4.15	25	2.16	1	1	.86		3.86	.33
52	29	Miliary tuberculosis, acute.....	1	.09					1	.09	.10	.01
53-57	30-34	Tuberculosis of other organs.....	2	.17			1	.09			.34	.03
59-74	37-38	Veneral diseases (all).....	1,891	163.30	14	1.21	1	4	.09		90.00	7.77
59-64	37	Syphilis.....	415	35.84	7	.60	1	1	.09		25.38	2.19
65-67	38a	Soft chancre.....	409	35.32							14.11	1.22
68-74	38b	Gonococcus infection.....	1,067	92.14	7	.60					50.50	4.36
75-79	39-45	Cancer and other malignant tumors.....	6	.52	3	.26					1.04	.09
80	46	Benign tumors.....	18	1.55							.87	.08
81-85	47-48	Rheumatism, articular (all).....	45	3.89	2	.17					2.29	.20
81-82	47	Acute articular rheumatism.....	28	2.42							1.23	.11
83-85	48	Chronic articular rheumatism.....	17	1.47	2	.17					1.06	.09
87-88	50	Diabetes.....	2	.17			1	1	.09		.04	.00
89	51	Exophthalmic goiter.....	2	.17	3	.26					.37	.03
97-100	56	Alcoholism and results.....	182	15.72	1	.09					2.88	.25
101-102	57-58	Chronic occupational poisoning.....	1	.09							.02	.00
103-104	59	Other chronic poisoning including drug habit.....	3	.26							.05	.00
109	62	Locomotor ataxia.....	2	.17							.02	.00
110-115	63	Other diseases of spinal cord.....	1	.09							.18	.02
116	64	Cerebral hemorrhage, apoplexy.....	1	.09			1	1	.09		.01	.00
117-119	66	Paralysis without specified cause.....	2	.17							.17	.01
120-126	67-68	Mental alienation.....	50	4.32	38	3.28		1	.09		5.16	.45
127	69	Epilepsy.....	9	.78	4	.35					.54	.05
129-133	73	Neuralgia and neuritis.....	64	5.53	2	.17					3.02	.26
138-141	75a	Follicular conjunctivitis.....	50	4.32							.83	.07
142	75b	Trachoma.....	1	.09							.09	.01
166	77	Pericarditis.....	1	.09							.11	.01
167	78	Acute endocarditis.....	3	.26			1	1	.09		.26	.02
169-174	79	Organic heart disease.....	24	2.07	5	.43	1	1	.09		2.16	.19
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.....	2	.17							.10	.01
178-179	82	Embolism and thrombosis.....	1	.09							.06	.00
181	83b	Hemorrhoids.....	90	7.77							2.63	.23
183	83d	Varicose veins.....	13	1.12	1	.09					1.21	.10
184	83e	Varicocele.....	39	3.37							1.91	.16
185-187	84	Diseases of the lymphatic system.....	103	8.89							4.31	.37
193-199	86	Diseases of the nasal fossae.....	178	15.37							2.48	.21
200-202	87	Diseases of the larynx.....	10	.86							.16	.01

* Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for Philippine Islands, American troops, enlisted colored, year 1916.

Philippine Islands, white American, enlisted men.										Philippine Islands, colored American, enlisted men.									
S. G. O., 10,635—A. G. O., 10,635.										S. G. O., 945—A. G. O., 945.									
Admissions.		Discharges.		Deaths.		Non-effective.				Admissions.		Discharges.		Deaths.		Non-effective.			
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
646	60.74					17.05	1.60	83	87.83							2.10	2.23		
167	15.70					5.35	.50	34	35.98							.85	.90		
2	.19					.45	.04												
4	.38					.10	.01												
450	42.88					10.80	1.01	48	50.79							1.25	1.32		
17	1.60					.35	.03	1	1.06							.01	.01		
10	.94					.14	.01												
13	1.22					.87	.08												
1	.09					.15	.01	2	2.12							.69	.73		
121	11.38					2.34	.22												
5	.47					.47	.04												
127	11.94					7.87	.74	12	12.70					1	1.06	1.32	1.39		
6	.56					.20	.02												
111	10.44					7.34	.69	12	12.70					1	1.06	1.32	1.39		
10	.94					.33	.03												
3	.28					.09	.01												
137	12.88					2.14	.20	5	5.29							.13	.13		
2	.19					.07	.01												
33	3.10					1.73	.16									.02	.02		
2	.19					.28	.03												
48	4.51	26	2.44	1	9	3.95	.37	3	3.17					2	2.12	.35	.37		
45	4.23	25	2.35	1	8	3.51	.33	3	3.17					2	2.12	.35	.37		
1	.09					.10	.01												
2	.19	1	.09			.34	.03												
1,658	155.91	13	1.22	1	1	81.78	7.69	233	246.56			1	1.06			8.22	8.70		
388	36.48	16	.56	1	1	23.12	2.17	27	28.57			1	1.06			2.26	2.39		
379	35.64					12.83	1.21	30	31.75							1.28	1.35		
891	83.78	7	.66			45.83	4.31	176	186.24							4.68	4.95		
6	.56	3	.28			1.04	.10												
18	1.69					.83	.08									.04	.05		
45	4.23					2.19	.21									.10	.10		
28	2.63					1.13	.11									.10	.10		
17	1.60	2	.18			1.06	.10												
2	.19					.04	.00												
2	.19	3	.28	1	1	.37	.03												
173	16.27	1	.09			2.79	.26	9	5.52							.09	.10		
1	.09					.02	.00												
3	.28					.05	.00												
2	.19					.02	.00												
1	.09					.18	.02												
1	.09					.01	.00												
2	.19					.17	.02												
43	4.04	37	3.48		1	4.55	.43	7	7.41			1	.06			.61	.65		
9	.85	4	.38			.54	.05												
58	5.45	2	.19			2.55	.24	6	6.35							.47	.50		
46	4.33					.78	.07	4	4.23							.05	.05		
1	.09					.09	.01												
1	.09					.11	.01												
2	.19					.17	.02	1	1.06							.09	.10		
18	1.69	4	.38	1	1	1.26	.12	6	6.35			1	.06			.90	.95		
2	.19					.10	.01												
1	.09					.06	.01												
75	7.05					3.00	.19	15	15.87							.63	.67		
13	1.22	1	.09			1.21	.11												
39	3.67					1.91	.18												
99	9.31					3.98	.37	4	4.23							.32	.34		
177	16.65					2.42	.23	1	1.06							.06	.07		
10	.94					.16	.01												

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE No. 72.—*Admissions to sick report, deaths, discharges, and noneffectiveness, with men, white and colored,*

Serial Nos.	International classification.	Causes of admission to sick report.	Philippine Islands, total American, enlisted men, white and colored.									
			S. G. O., 11,580—A. G. O., 11,580.									
			Mean strength.....									
					Admissions.		Discharges.		Deaths.		Non-effective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
					(1)	(2)			(1)	(2)		
202-204	88	Diseases of the thyroid body.....	6	0.52							0.40	0.03
205-206	89	Bronchitis.....	414	35.75							8.60	.75
207	91	Broncho-pneumonia.....	3	.26					1	1.00	.19	.02
208	92	Pneumonia.....	7	.60					1	1.00	.54	.05
209-215	93	Pleurisy.....	50	4.32		1	0.09				2.20	.28
216-217	94	Pulmonary congestion and pulmonary apoplexy.....	1	.09							.03	.00
219	96	Asthma.....	12	1.04		1	.09				.00	.05
220	97	Pulmonary emphysema.....	2	.17							.20	.02
221	98a	Hæmoptysis.....	45	3.89							.11	.01
224-227	99a	Diseases of the teeth and gums.....	18	1.55							.91	.08
228-231	99b	Other diseases of the mouth and annæra.....	570	49.22							8.93	.77
232-236	100	Diseases of the pharynx.....	2	.17							.11	.01
238	102	Ulcer of stomach.....	166	14.34		1	.09				3.00	.26
239-244	103	Other diseases of stomach (cancer excepted).....	609	52.50				1	1.00		7.30	.63
245-253	105	Diarrhea and enteritis.....	12	1.04							.61	.05
254	106	Ankylostomiasis.....	26	2.25							.47	.04
255-259	107	Intestinal parasites.....	150	12.95		1	.09	1	2	.17	9.03	.78
260	108	Appendicitis.....	52	4.49				1	1	1.00	4.51	.39
261-263	109	Hernia.....	16	1.38							.43	.04
264-267	110a	Diseases of the anus and fecal fistula.....	439	37.91		5	.43	1	1	1.00	6.47	.56
268-272	110b	Other diseases of the intestines.....	3	.26							.29	.03
276	114	Biliary calculi.....	76	6.56		1	.09	1	1	1.00	2.99	.26
277-281	115	Other diseases of liver and gall bladder.....	2	.17							.07	.01
282-284	117	Simple peritonitis.....	22	1.90							.09	.06
288	119	Acute nephritis.....	16	1.38		2	.17		1	1.00	1.44	.12
289-291	120	Bright's disease.....	9	.78					1	1.00	.64	.06
292-299	122	Other diseases of the kidney and annæra.....	21	1.81		1	.09				.90	.08
303-306	124	Diseases of the bladder.....	8	.69		1	.09				.35	.03
304	124b	Emureals.....	24	2.07							.33	.03
307-309	125	Diseases of the urethra, urinary abscess, etc.....	1	.09							.01	.00
310-312	126	Diseases of the prostate.....	45	3.89							1.47	.13
313-319	127	Diseases of the male genital organs (non venereal).....	122	10.54							1.83	.16
322-323	143	Furuncle and carbuncle.....	204	17.62							6.07	.53
324-325	144	Acute abscess and cellulitis.....	33	2.85							1.24	.11
332-337	146	Diseases of the bones.....	34	2.94		6	.52				2.41	.21
338-360	147	Diseases of the joints.....	67	5.79		1	.09	22	1.90		3.32	.29
367	147g	Flat foot.....	78	6.74		2	.17				2.33	.20
372	150	Congenital malformations.....										
373-374	154	Senility.....										
375	189Aa	Fabricious, simple, continued, and other fevers of undetermined causation.....	58	5.01							1.15	.10
379	189Ba	Under observation, undiagnosed and unknown.....	11	.95							.61	.05
380	189Bb	Malingering.....	3	.26							.20	.02

* Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for Philippine Islands, American troops, enlisted year 1916—Continued.

Philippine Islands, white American, enlisted men.								Philippine Islands, colored American, enlisted men.							
S. G. O., 10,635—A. G. O., 10,635.								S. G. O., 945—A. G. O., 945.							
Admissions.		Discharges.		Deaths.		Non-effective.		Admissions.		Discharges.		Deaths.		Non-effective.	
Number.	Ratio.	Number.		Number.		Number.	Ratio.	Number.	Ratio.	Number.		Number.		Number.	Ratio.
		(1)	(2)	(1)	(2)					(1)	(2)	(1)	(2)		
6	0.56					0.40	0.04								
391	37.05					8.17	.77	20	21.16					0.52	0.55
3	.28			1	1.09	.19	.02								
7	.66					.54	.05								
44	4.14	1	0.09	1	1.09	2.91	.27	6	6.35					.20	.31
1	.09					.03	.00								
10	.94	1	.09			.57	.05	2	2.12					.05	.03
2	.19					.20	.02								
39	3.67					.11	.01							.08	.08
17	1.60					.83	.08	6	6.35					.08	.08
497	46.74					.35	.03	1	1.06					.01	.01
2	.19					7.85	.74	73	77.25					1.07	1.13
149	14.01	1	.09			.11	.01							.22	.24
528	49.65			1	1.09	2.77	.26	17	17.99					.78	.83
11	1.03					6.52	.61	81	85.72					.01	.01
25	2.35					.60	.06	1	1.06					.02	.02
143	13.45	1	.09	1	1.09	.46	.04	1	1.06			1	1.06	.75	.79
47	4.42	1	.09	1	1.09	8.28	.78	7	7.41					.68	.72
16	1.50					3.83	.36	5	5.29						
392	36.86	5	.47	1	1.09	.43	.04							.37	.39
3	.28					6.11	.57	47	49.74						
74	6.96	1	.09	1	1.09	.29	.03							.08	.09
1	.09					2.91	.27	2	2.12					.01	.01
14	1.32					.06	.01	1	1.06					.34	.36
16	1.50	2	.19	1	1.09	.64	.06	8	8.47						
9	.85					1.44	.14								
20	1.88	1	.09			.06	.06							.10	.11
8	.75	1	.09			.80	.08	1	1.06					.14	.14
15	1.41					.35	.03	9	9.52						
1	.09					.20	.02								
39	3.67					.01	.00								
108	10.16					1.16	.11	6	6.35					.31	.32
181	17.02					1.52	.15	14	14.82					.32	.34
31	2.91					4.90	.46	23	24.34					1.17	1.24
31	2.91	5	.47			1.22	.12	2	2.12					.02	.02
67	6.30	1	.09			1.87	.18	3	3.17	1	1.06			.54	.57
77	7.24	1	.09			3.32	.31			1	1.06			.04	.06
						2.27	.22	1	1.06	1	1.06				
57	5.36					1.11	.10	1	1.06					.04	.04
11	1.03					.61	.06								
3	.28					.20	.02								

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE NO. 72.—*Admissions to sick report, deaths, discharges, and noneffectiveness, with men, white and colored,*

Serial Nos.	International classification.		Philippine Islands, total American, enlisted men, white and colored.									
		Mean strength.....	S. G. O., 11,580—A. G. O., 11,580.									
		Causes of admission to sick report.	Admissions.		Discharges.		Deaths.		Non-effective.			
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹												
426-434	155-163	Suicides, all.....	1	0.09			6	6	0.53			
435	164	Poisoning by food.....	103	8.89								
436	165a	Venomous bites and stings.....	14	1.21								
437	165b	Other poisoning (deleterious gases excepted).....	3	.26								
439	167	Burns (conflagrations excepted).....	37	3.20								
442	169	Drowning, accidental.....					4	4	.35			
443	170	Traumatism by firearms (other than specified).....	19	1.64			1	1	.09			
445	171	Traumatism by cutting or piercing instruments.....	109	9.41								
446	172	Traumatism by fall.....	301	25.99	6	0.52	1	1	.09			
447	173	Traumatism in mines and quarries.....	1	.09			1	.09				
448	174	Traumatism by machines.....	13	1.12								
449	175	Traumatism by other crushing.....	119	10.28	2	.17	6	6	.52			
450	176	Injuries by animals.....	112	9.67								
453	179	Effects of heat.....	24	2.07								
456-458	182-4	Homicides, all.....	1	.09			1	1	.09			
460	186	Other external violence.....	558	48.19	4	.35						
DISEASES AND INJURIES GROUPED.												
		General diseases.....	3,413	294.73	46	3.97	5	18	1.55	139.92	12.06	
	1-19	Epidemic diseases.....	1,207	104.23			1	1	.09	37.39	3.23	
	20-59	Other general diseases.....	2,206	190.50	46	3.97	4	17	1.47	102.53	8.85	
		Diseases of the nervous system and organs of special sense.....	458	39.55	50	4.32	1	2	1.17	19.86	1.71	
	60-74	Of the nervous system.....	200	17.27	49	4.23	1	2	.17	13.69	1.18	
	75	Of the eye and its annexa.....	154	13.30	1	.09				3.61	.31	
	76	Of the ear and its annexa.....	104	8.98						2.56	.22	
	77-85	Diseases of the circulatory system.....	290	25.04	6	.52	2	2	.17	13.35	1.14	
	86-96	Diseases of the respiratory system.....	687	59.33	2	.17	1	2	.17	16.69	1.44	
	99-118	Diseases of the digestive system.....	2,187	188.86	8	.69	6	6	.52	45.50	3.93	
	119-127	Diseases of the genito-urinary system.....	143	12.35	3	.26		2	.17	6.30	.54	
	142-145	Diseases of the skin and cellular tissue.....	666	57.52	3	.26				18.36	1.59	
	146-149	Diseases of the organs of locomotion.....	273	23.58	1	.33	2	2	.17	11.50	.99	
	150	Malformations, etc.....	78	6.74	2	2.17				2.34	.20	
	189	Ill-defined diseases.....	78	6.74						2.03	.18	
		Total for disease.....	8,273	714.42	1	152	13.13	15	32	2.76	275.74	23.81
	155-186	External causes.....	1,438	124.18		15	1.30	20	20	1.73	47.15	4.07
		Total for disease and external causes.....	9,711	838.60	1	167	14.42	35	52	4.49	322.89	27.88

¹ Number of discharges and deaths which actually occurred.² Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

ratios per 1,000 of mean strength, for Philippine Islands, American troops, enlisted year 1916—Continued.

Philippine Islands, white American, enlisted men.										Philippine Islands, colored American, enlisted men.									
S. G. O., 10,635—A. G. O., 10,635.										S. G. O., 945—A. G. O., 945.									
Admissions.		Discharges.			Deaths.			Non-effective.		Admissions.		Discharges.			Deaths.			Non-effective.	
Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.	Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
		(1)	(2)		(1)	(2)						(1)	(2)		(1)	(2)			
1	0.09				6	6	0.53			53	55.08								
50	4.70									3	3.17								
11	1.03																		
3	.28									3	3.17								
34	3.20				4	4	.38												
10	.94									9	9.52				1	1	0.09		
89	8.37									20	21.16								
259	24.36	5	0.47		1	1	.09			42	44.45	1	1.06						
1	.09				1	1	.09			4	4.23								
9	.85									23	29.63								
91	8.59	2	.19		6	6	.56			46	48.68								
66	6.21																		
18	1.69				1	1	.09												
1	.09									95	108.70								
460	43.25	4	.38																
3,065	288.20	45	4.23		4	15	1.41	126.66	11.91	348	368.25	1	1.06		1	3	3.17	13.26	14.08
1,105	103.90							33.13	3.12	102	107.93				1	1	1.06	4.26	4.51
1,960	184.30	45	4.23		4	15	1.41	93.53	8.79	246	260.32	1	1.06		2	2.12	9.00	9.53	
426	40.06	1	.09		49	4.53	1	2	.19	32	33.86			1	1.06			2.02	2.13
185	17.40				48	4.51	1	2	.19	15	15.87			1	1.06			1.54	1.63
147	13.82				1	.02				7	7.41							.10	.11
94	8.84							2.19	.21	10	10.58							.37	.39
264	24.83				5	.47	2	2	.19	26	27.51			1	1.06			1.94	2.06
658	61.88				2	.19	1	2	.19	29	30.69							.90	.95
1,945	182.90	8	.75		4	5	.47	41.42	3.89	242	256.08				1	1	.06	4.08	4.31
118	11.10				3	.28		2	.19	25	26.46							1.34	1.42
588	55.30				3	.28				78	82.54							2.84	3.00
259	24.35	1	.09		32	3.01		10.31	.97	14	14.81			1	1.06			1.19	1.26
77	7.24				1	.09		2.29	.22	1	1.06			1	1.06			.04	.05
77	7.24							1.99	.19	1	1.06							.04	.04
7,477	703.06	1	.09	148	13.92	13	28	2.63	248.06	23.33	796	842.33	4	4.23	2	4	4.23	27.66	29.27
1,126	106.88			14	1.32	19	19	1.79	37.68	3.54	312	330.16	1	1.06	1	1	1.06	9.47	10.02
8,603	808.93	1	.09	162	15.23	22	47	4.42	285.76	26.87	1,108	1,172.49	5	5.29	3	5	5.29	37.13	39.29

* Noneffectiveness of individual external causes not tabulated.

TABLE 72½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with year

Serial Nos.	International classification.	Mean strength.....	Officers.									
			294									
			Admissions.		Discharges.		Deaths.		Non-effective.			
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.		
(1)	(2)	(1)			(2)							
		Causes of admission to sick report.										
1	1	Typhoid fever.....	1	3.40						0.02	0.07	
2	1a	Paratyphoid fever.....	1	3.40						.01	.05	
7-11	4	Malaria.....	1	3.40						.00	.01	
7		Estivo-autumnal fever.....										
10		Tertian malarial fever.....	1	3.40						.00	.01	
11		Undetermined malarial fever.....										
12	5	Smallpox and varioloid.....	1	3.40						.05	.09	
13	5b	Vaccinia.....										
14	6	Measles.....										
15	7	Scarlet fever.....										
18	10	Influenza.....										
21-23	14	Dysentery.....	4	13.61						.07	.22	
21		Bacillary.....										
22		Entamoebic.....	2	6.80						.05	.16	
23		Unclassified.....	2	6.80						.02	.07	
27	18	Erysipelas.....										
34	19g	Mumps.....										
37	20	Purulent infection and septicaemia.....										
49-57	28-34	Tuberculosis, all.....										
49-51	28	Tuberculosis of lungs.....										
53-57	30-34	Tuberculosis of other organs.....										
68	36	Scoliosis (rickets).....										
59-74	37-38	Veneral diseases, all.....	1	3.40						.00	.01	
59-64	37	Syphilis.....										
65-67	38a	Soft chancre.....										
68-74	38b	Gonococcus infection.....	1	3.40						.00	.01	
75-79	39-45	Cancer and other malignant tumors.....						1	3.40			
80	46	Benign tumors.....	1	3.40						.01	.02	
81-85	47-48	Rheumatism, articular, all.....	1	3.40						.01	.04	
81-82	47	Acute articular rheumatism.....	1	3.40						.01	.04	
83-85	48	Chronic articular rheumatism.....										
87-88	50	Diabetes.....										
89	51	Exophthalmic goitre.....										
97-100	56	Alcoholism and results.....	2	6.80						.02	.06	
103-104	59	Other chronic poisoning, including drug habit.....										
105-106	60	Encephalitis.....										
108	61a	Epidemic cerebrospinal meningitis.....										
109	62	Locomotor ataxia.....										
116	64	Cerebral hemorrhage, apoplexy.....										
117-119	66	Paralysis without specified cause.....										
120-126	67-68	Mental alienation.....										
127	69	Epilepsy.....										
129-133	73	Neuralgia and neuritis.....	4	13.61						.02	.06	
138-141	75a	Follicular conjunctivitis.....										
166	77	Pericarditis.....										
167	78	Acute endocarditis.....										
169-174	79	Organic heart disease.....	1	3.40						.01	.05	
175	80	Angina pectoris.....										
176-177½	81	Diseases of the arteries, atheroma, aneurism, etc.....	3	10.20				1	1	3.40	.02	.07
178-179	82	Embolism and thrombosis.....										
181	83b	Hemorrhoids.....	6	20.41						.06	.20	
183	83d	Varicose veins.....										
184	83e	Varicocele.....										
185-187	84	Diseases of the lymphatic system.....										
193-199	86	Diseases of the nasal fossæ.....	5	17.01						.02	.07	
200-202	87	Diseases of the larynx.....	2	6.80						.01	.04	
203-204	88	Diseases of the thyroid body.....										
205-206	89-90	Bronchitis.....	4	13.61						.05	.19	

¹ Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for United States punitive expedition in Mexico, 1916.

Enlisted men, white and colored.										Officers and enlisted men, white and colored.									
6,170										1,879									
Admissions.		Discharges.		Deaths.		Non-effective.				Admissions.		Discharges.		Deaths.		Non-effective.			
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
6	0.75					0.60	0.07	7	0.84							0.62	0.07		
90	11.18					7.72	.96	91	10.91							7.73	.93		
249	30.94					3.39	.42	250	29.96							3.39	.41		
79	9.82					1.23	.15	79	9.47							1.23	.15		
73	9.07					1.23	.15	74	8.87							1.24	.15		
97	12.05					.92	.11	97	11.63							.92	.11		
9	1.12					.08	.01	9	1.12							.08	.01		
8	.99					.33	.04	8	1.08							.08	.01		
4	.50					.38	.05	4	.48							.33	.04		
20	2.48					.19	.02	20	2.40							.38	.05		
190	23.61	2	0.25	2	0.25	5.43	.67	194	23.25	2	0.25	2	0.24	5.49	.66	.19	.02		
10	1.24			1	.12	.20	.03	10	1.20			1	.12	.20	.02				
121	15.03	2	.25	1	.12	4.19	.52	123	14.74	2	.25	1	.12	4.24	.52				
59	7.33					1.03	.13	61	7.31					1.05	.13				
2	.25					.06	.01	2	.24					.06	.01				
13	1.62					.22	.03	13	1.56					.22	.03				
1	.12			3	.37	.03	.00	1	.12			3	.36	.03	.00				
16	1.99	17	2.11	1	.12	.41	.05	16	1.92	17	2.11	1	.12	.41	.05				
12	1.43	17	2.11	1	.12	.27	.03	12	1.44	17	2.11	1	.12	.27	.03				
4	.49					.14	.02	4	.48					.14	.02				
1	.12					.03	.00	1	.12					.03	.00				
538	66.84	22	2.73	2	.25	17.83	2.21	539	64.60	22	2.73	2	.24	17.83	2.14				
174	21.62	12	1.46	2	.25	5.97	.74	174	20.86	12	1.49	2	.24	5.97	.72				
102	12.67					3.53	.44	102	12.22					3.53	.42				
262	32.55	10	1.24			8.33	1.03	263	31.52	10	1.24			8.33	1.00				
3	.37	1	.12			.05	.01	3	.36	1	.12			.05	.01				
7	.87	2	.25			.33	.01	8	.96	2	.25			.33	.04				
60	7.46	4	.49			1.74	.21	61	7.31	4	.49			1.75	.21				
47	5.81	1	.12			1.31	.16	48	5.75	1	.12			1.33	.16				
13	1.62	3	.37			.43	.05	13	1.56	3	.37			.43	.05				
3	.37	2	.25			.06	.00	3	.36	2	.25			.06	.00				
7	.87	1	.12			.04	.01	9	1.08	1	.12			.06	.01				
3	.37	1	.12			.11	.02		.36	1	.12			.14	.02				
1	.12			1	.12	.02	.00	3	.12			1	.12	.02	.00				
1	.12					.01	.00	1	.12					.01	.00				
9	1.12	13	1.62			.13	.02	9	1.08	13	1.62			.13	.02				
10	1.24	5	.62			.28	.03	10	1.20	5	.62			.28	.03				
48	5.96	1	.12			1.18	.15	52	6.23	1	.12			1.20	.15				
44	5.47					.86	.11	44	5.27					.86	.10				
1	.12					.02	.00	1	.12					.02	.00				
1	.12			1	.12	.06	.01	1	.12			1	.12	.06	.01				
9	1.12	4	.50			.11	.01	10	1.20	4	.50			.12	.01				
1	.12	3	.37			.01	.00	4	.48	3	.37	1	.12	.03	.00				
1	.12					.05	.01	1	.12					.05	.01				
91	11.31					1.56	.19	97	11.63					1.61	.19				
9	1.12	3	.37			.18	.02	9	1.08					.19	.02				
11	1.37					.20	.02	11	1.32					.20	.02				
59	7.33					2.75	.34	59	7.07					2.75	.33				
40	4.97					.44	.05	45	5.39					.46	.06				
5	.62					.09	.01	7	.84					.10	.01				
2	.25	1	.12			.03	.00	2	.24	1	.12			.03	.00				
162	20.13					2.11	.26	166	19.90					2.17	.26				

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE 72½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with 1916—

Serial No.	International classification.	Causes of admission to sick report.	Officers.							
			294							
			Admis- sions.		Discharges.		Deaths.		Non- effective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
		Mean strength.....								
207	91	Broncho-pneumonia.....	1	3.40					0.02	0.06
208	92	Pneumonia.....	1	3.40					.05	.18
209-215	93	Pleurisy.....								
219	96	Asthma.....	3	10.20					.04	.14
222	98b	Hay fever.....	1	3.40					.01	.07
224-227	99a	Diseases of the teeth and gums.....	14	47.62					.08	.27
228-231	99b	Other diseases of the mouth and annexa.....								
232-236	100	Diseases of the pharynx.....	13	44.22					.13	.43
238	102	Ulcer of stomach.....								
239-244	103	Other diseases of stomach (cancer excepted).....								
245-253	105	Diarrhea and enteritis.....	79	268.71					1.06	3.63
255-259	107	Intestinal parasites.....	1	3.40					.02	.06
260	108	Appendicitis.....	13	44.22					.13	.45
261-263	109	Hernia.....	3	10.20					.02	.06
264-267	110a	Diseases of the anus and fecal fistula.....								
268-272	110b	Other diseases of the intestines.....	3	10.20					.01	.04
275	113	Cirrhosis of liver.....								
276	114	Biliary calculi.....	1	3.40					.01	.04
277-281	115	Other diseases of liver and gall bladder.....	3	10.20					.07	.24
283-284	117	Simple peritonitis.....								
288	119	Acute nephritis.....								
289-291	120	Bright's disease.....								
293-299	122	Other diseases of the kidney and annexa.....								
303-306	124	Diseases of the bladder.....								
307-309	125	Diseases of the urethra, urinary abscess, etc.....								
310-312	126	Diseases of the prostate.....								
313-319	127	Diseases of the male genital organs (nonvenereal).....	1	3.40					.01	.05
322-323	143	Furuncle and carbuncle.....	2	6.80					.01	.03
324-325	144	Acute abscess and cellulitis.....	2	6.80					.02	.07
352-357	146	Diseases of the bones.....	3	10.20					.02	.07
358-360	147	Diseases of the joints.....	1	3.40					.00	.01
372	150	Congenital malformations.....								
375	189Aa	Febricula, simple continued, and other fevers of undetermined causation.....	3	10.20					.06	.20
379	189Ba	Under observation, undiagnosed and unknown.....	3	10.20					.05	.17
380	189Bb	Malingering.....								
		AFFECTIONS PRODUCED BY EX- TERNAL CAUSES.¹								
426-434	155-163	Suicides, all.....								
435	164	Poisoning by food.....	4	13.61						
436	165a	Venomous bites and stings.....	1	3.40						
439	167	Burns (conflagrations excepted).....	1	3.40						
440	168	Absorption of deleterious gases.....								
442	169	Drowning, accidental.....								
443	170	Traumatism by firearms (other than specified).....	3	10.20						
444	170a	Shot by sentry or guard.....								
445	171	Traumatism by cutting or piercing instruments.....	2	6.80						
446	172	Traumatism by fall.....	5	17.01						
448	174	Traumatism by machines.....								
449	175	Traumatism by other crushing.....								
450	176	Injuries by animals.....	4	13.61						

¹ Number of discharges and deaths which actually occurred.² Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

ratios per 1,000 of mean strength, for United States punitive expedition in Mexico, year Continued.

Enlisted men, white and colored.								Officers and enlisted men, white and colored.							
6,170								1,879							
Admissions.		Discharges.		Deaths.		Non-effective.		Admissions.		Discharges.		Deaths.		Non-effective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
		(1)	(2)	(1)	(2)					(1)	(2)	(1)	(2)		
3	0.37					0.07	0.01	4	0.48					0.08	0.01
19	2.36			3	0.37	.75	.09	20	2.40			3	0.36	.80	.10
30	3.73	1	0.12			.42	.05	30	3.60	1	0.12			.42	.05
6	.75			1	.12	.08	.01	9	1.08			1	.12	.12	.01
1	.12					.02	.00	2	.24					.02	.00
184	22.86					1.44	.18	198	23.73					1.32	.18
3	.37					.04	.01	3	.36					.04	.01
418	51.93					5.77	.72	431	51.66					5.89	.71
2	.25	1	.12			.04	.00	2	.24	1	.12			.04	.00
112	13.91					1.66	.21	112	13.42					1.66	.20
1,532	190.33			1	.12	17.34	2.15	1,611	193.10			1	.12	18.40	2.21
7	.87					.06	.01	8	.96					.08	.01
66	8.20					1.79	.22	79	9.47					1.92	.23
50	6.21	6	.75			.84	.10	53	6.35	6	.75			.86	.10
9	1.12					.23	.03	9	1.08					.23	.03
126	15.65	2	.25			1.02	.13	129	15.46	2	.25			1.03	.12
2	.25			1	.12	.03	.00	2	.24			1	.12	.03	.00
1	.12					.01	.00	2	.24					.02	.00
18	2.24					.44	.05	21	2.52					.51	.06
4	.50					.10	.01	4	.48					.10	.01
4	.50	2	.24			.12	.01	4	.48	2	.24			.12	.01
4	.50					.04	.00	4	.48					.04	.00
10	1.24	2	.25			.31	.04	10	1.20	2	.25			.31	.04
8	.99					.08	.01	8	.96					.08	.01
1	.12					.00	.00	1	.12					.00	.00
38	4.72	1	.12			.89	.11	39	4.67	1	.12			.91	.11
135	16.77					1.93	.24	137	16.42					1.93	.23
109	13.54					2.25	.28	111	13.30					2.27	.27
28	3.48	1	.12			.75	.09	31	3.72	1	.12			.77	.09
47	5.84	4	.50			1.07	.13	48	5.75	4	.50			1.05	.13
7	.87					.19	.02	7	.84					.19	.02
199	24.72					6.55	.81	202	24.21					6.61	.79
19	2.36			1	.12	.28	.03	22	2.64			1	.12	.33	.04
3	.37					.01	.00	3	.36					.01	.00
				4	.50							4	.48		
55	6.83							59	7.07						
6	.75							7	.84						
25	3.11							26	3.12						
1	.12							1	.12						
				2	.25							1	.12		
												2	.24		
70	8.70	10	1.24	3	.37			73	4.60	10	1.24	3	.36		
1	.12	1	.12					1	.12	1	.12				
41	5.09							43	5.15						
228	28.33	8	.99					233	27.93	8	.99				
5	.62	1	.12					5	.60	1	.12				
44	5.47	2	.25	1	.12			44	5.27	2	.25	1	.12		
165	20.50	1	.12					169	20.26	1	.12				

* Noneffectiveness for individual external causes not tabulated.

TABLE 72½.—Admissions to sick report, discharges, deaths, and noneffectiveness, with 1916—

Serial Nos.	International classification.		Officers.									
		Mean strength.....	294									
		Causes of admission to sick report.	Admissions.		Discharges.			Deaths.			Non-effective.	
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
		AFFECTIONS PRODUCED BY EXTERNAL CAUSES—continued.										
453	179	Effects of heat.....	2	6.80								
454	180	Effects of lightning.....										
456-458	182-4	Homicides, all.....										
460	186	Other external violence.....	5	17.01								
462-466		Killed or wounded in action.....	5	17.01				2	2	6.80		
462		By bullet.....	5	17.01				2	2	6.80		
466		By other weapon.....										
		DISEASES AND INJURIES GROUPED.										
		General diseases.....	17	57.82				1	3.40	0.18	0.61	
1-19		Epidemic diseases.....	10	34.01						.13	.16	
20-59		Other general diseases.....	7	23.81				1	3.40	.05	.16	
		Diseases of the nervous system and organs of special sense.....	9	30.61						.06	.21	
60-74		Of the nervous system.....	6	20.41						.03	.11	
75		Of the eye and its annexa.....	3	10.20						.03	.10	
76		Of the ear and its annexa.....										
77-85		Diseases of the circulatory system.....	10	34.01				1	3.40	.10	.34	
86-98		Diseases of the respiratory system.....	17	57.82						.20	.69	
99-118		Diseases of the digestive system.....	130	442.18						1.53	5.19	
119-127		Diseases of the genito-urinary system.....	1	3.40						.01	.05	
142-145		Diseases of the skin and cellular tissue.....	10	34.01						.17	.58	
146-149		Diseases of the organs of locomotion.....	6	20.41						.06	.20	
150		Malformations, etc.....										
189		Ill-defined diseases.....	6	20.41						.11	.36	
		Total for disease.....	206	700.68				1	2	6.80	2.42	
155-186		External causes.....	83	112.24				2	2	6.80	.43	
		Total for disease and external causes.....	239	812.93				3	4	13.61	2.85	

¹ Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for United States punitive expedition in Mexico, year Continued.

Enlisted men, white and colored.										Officers and enlisted men, white and colored.									
6,170										1,570									
Admissions.		Discharges.		Deaths.		Non-effective.				Admissions.		Discharges.		Deaths.		Non-effective.			
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.		
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)			(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)		
17	2.11									19	2.28								
1	.12			1	0.12					1	.12			1	0.12				
2	.25			7	.87					2	.24			7	.84				
282	35.03	3	0.37							287	34.40	3	0.37						
27	3.35	2	.25	24	2.93					32	3.84	2	.25	26	3.24				
26	3.23	2	.25	24	2.93					31	3.72	2	.25	26	3.24				
1	.12									1	.12								
1,416	175.92	55	6.83	7	.86	39.77	4.94			1,433	171.76	55	6.83	7	.86	39.95	4.79		
607	75.41	2	.25	2	.25	18.50	2.30			617	73.95	2	.25	2	.24	18.63	2.23		
806	100.51	53	6.58	5	.67	21.27	2.64			816	97.80	53	6.58	5	.67	21.32	2.56		
237	29.45	24	2.98	1	.12	4.52	.55			246	29.49	24	2.98	1	.12	4.58	.55		
82	10.19	22	2.73	1	.12	1.89	.23			88	10.55	22	2.73	1	.12	1.92	.23		
92	11.43	2	.25			1.57	.19			95	11.39	2	.25			1.60	.19		
63	7.83					1.06	.13			63	7.55					1.06	.13		
196	24.35	11	1.37	1	.12	5.29	.66			206	24.69	11	1.37	2	.24	5.39	.66		
299	33.42	3	.37	3	.37	4.04	.50			286	34.28	3	.37	3	.36	4.24	.51		
2,532	314.57	10	1.24	2	.25	30.75	3.82			2,662	319.07	10	1.24	2	.25	32.27	3.87		
72	8.95	6	.75			1.60	.20			73	8.75	6	.75			1.61	.19		
360	44.73					7.11	.88			370	44.35					7.28	.87		
219	27.21	13	1.62			4.16	.52			225	26.97	13	1.62			4.22	.51		
7	.87					.19	.02			7	.84					.19	.02		
226	28.08			1	.12	6.90	.86			232	27.81			1	.12	7.01	.84		
5,534	687.54	122	15.16	15	1.87	104.31	12.96			5,740	688.00	122	15.16	16	1.99	106.73	12.79		
987	122.62	30	3.73	43	5.47	21.43	2.66			1,020	122.26	30	3.73	45	5.51	21.86	2.62		
6,521	810.16	152	18.89	58	7.18	125.74	15.62			6,760	810.26	152	18.89	61	7.79	128.58	15.41		

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE NO. 73.—Admissions to sick report, discharges, deaths, and noneffectiveness, with Canal Zone, and China,

Serial Nos.	International classification.	Mean strength.....	Alaska, officers and enlisted men.							
			S. G. O., 770—A. G. O., 767.							
			Admissions.		Discharges.		Deaths.		Non-effective.	
			Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Causes of admission to sick report.		(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	
2	1a	Paratyphoid fever							0.00	0.00
7-11	4	Malaria.....								
7		Estivo-autumnal fever								
8		Malarial cachexia								
9		Quartan malarial fever								
10		Tertian malarial fever								
11		Undetermined malarial fever								
13	5b	Vaccinia.....	1	1.30					.00	.00
14	6	Measles.....								
15	7	Scarlet fever.....								
17	9	Diphtheria.....								
18	10	Influenza.....	4	5.19					.05	.07
19	12	Asiatic cholera.....								
20	13	Cholera nostras.....								
21-23	14	Dysentery.....								
21		Bacillary.....								
22		Entamoebic.....								
23		Unclassified.....								
27	18	Erysipelas.....								
29	19b	Dengue.....								
31	19d	German measles								
32	19e	Haemoglobinuric fever								
34	19g	Mumps.....								
37	20	Purulent infection and septicemia.....	1	1.30					.01	.00
41	24	Tetanus.....								
42-46	25	Mycoses.....								
48	27	Beriberi.....								
49-57	28-34	Tuberculosis, all.....	1	1.30	1	1.34			.02	.02
49-61	28	Tuberculosis of lungs.....	1	1.30	1	1.34			.02	.02
52	29	Miliary tuberculosis, acute.....								
53-57	30-34	Tuberculosis of other organs.....								
58	36	Scoliosis (rickets).....								
59-74	37-38	Venerous diseases, all.....	15	19.48	1	1.34			.54	.70
59-64	37	Syphilis.....	2	2.60					.09	.12
65-67	38a	Soft chancre.....	1	1.30						
68-74	38b	Gonococcus infection.....	12	15.58	1	1.34			.44	.57
75-79	39-45	Cancer and other malignant tumors.....								
80	46	Benign tumors.....	2	2.60					.01	.01
81-85	47-48	Rheumatism, articular, all.....	2	2.60					.03	.03
81-82	47	Acute articular rheumatism	1	1.30					.01	.01
83-85	48	Chronic articular rheumatism.....	1	1.30					.02	.02
87-88	50	Diabetes.....								
89	51	Exophthalmic goiter.....	2	2.60	1	1.34				
97-100	56	Alcoholism and results.....	7	9.09					.07	.10
101-102	57-58	Chronic occupational poisoning.....								
103-104	59	Other chronic poisoning, including drug habit.....								
106	61a	Epidemic cerebrospinal meningitis.....								
109	62	Locomotor ataxia.....								
117-119	66	Paralysis without specified cause.....								
120-126	67-68	Mental alienation.....	2	2.60	4	5.37			.10	.12
127	69	Epilepsy.....								
129-133	73	Neuralgia and neuritis.....	2	2.60					.02	.03
138-141	75a	Follicular conjunctivitis.....	1	1.30					.01	.01
142	75b	Trachoma.....								
166-174	79	Organic heart disease.....	1	1.30					.01	.02
175	80	Angina pectoris.....								
181	82b	Hemorrhoids.....	9	11.69					.28	.37
183	83d	Varicose veins.....								
184	83e	Varicocele.....								
185-187	84	Diseases of the lymphatic system.....								
192-199	86	Diseases of the nasal fossae.....	1	1.30					.02	.03

¹ Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for American troops serving in Alaska, Panama year 1916.

Panama Canal Zone, officers and enlisted men.								China, officers and enlisted men.							
S. G. O., 7,023—A. G. O., 7,025.								S. G. O., 1,369—A. G. O., 1,369.							
Admissions.		Discharges.		Deaths.		Non-effective.		Admissions.		Discharges.		Deaths.		Non-effective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
467	66.50					14.40	2.05	1	0.73					0.04	0.03
200	28.48					7.18	1.02	12	8.77					.22	.16
1	.14					.01	.00								
2	.28					.07	.01								
228	32.46					5.90	.84	11	8.04					.16	.12
36	5.13					1.24	.18	1	.73					.06	.04
3	.43					.02	.00								
8	1.14					.36	.05								
1	.14					.03	.00	8	5.84			1	1	0.73	.75
271	38.59					4.61	.66	23	16.80					.38	.28
9	1.28					.64	.09	5	3.65					.15	.11
1	.14					.01	.00								
3	.43					.34	.05	2	1.46					.06	.05
5	.71					.28	.04	3	2.19					.09	.07
								4	2.92					.19	.14
118	16.80					2.91	.41								
5	.71					.13	.02	7	5.11					.32	.23
29	4.13	27	3.98	10	1.4	2.67	.38	2	1.46	3	2.19	1	2	1.46	.14
26	3.70	24	3.54	1	.14	2.06	.29	2	1.46	3	2.19	1	2	1.46	.14
1	.14	1	.15			.24	.03								
2	.28	2	.30			.37	.05								
2	.28	1	.15			.11	.02								
812	115.62	9	1.33			36.81	5.25	390	284.88	1	.73	1	1	.73	19.09
133	18.94	5	.74			10.02	1.43	77	56.25			1	1	.73	4.25
253	36.02					10.00	1.42	165	120.53						7.01
426	60.06	4	.59			16.86	2.40	148	108.11	1	.73				7.83
2	.28			2	.28	.21	.00								
6	.85					.10	.01	1	.73					.00	.00
27	3.84					.60	.09	6	4.38					.21	.16
23	3.27					.53	.08	4	2.92					.15	.11
4	.57					.07	.01	2	1.46					.07	.05
2	.28			1	.14	.03	.00								
1	.14	3	.44			.17	.02								
89	12.67					1.33	.19	22	16.07	1	.73	1	1	.73	.53
1	.14	1	.15			.25	.04								
1	.28					.03	.00	3	2.19					.06	.04
1	.14					.04	.01								
1	.14			1	.14	.46	.07								
6	.85	1	.14			.26	.04								
25	3.56	20	2.95			5.12	.73	4	2.92	1	.73			.34	.25
12	1.71	7	1.03			1.16	.06	1	.73					.02	.02
32	4.56					1.00	.14	1	.73					.31	.22
35	4.98	1	.15			1.26	.18	4	2.92					.03	.02
1	.14	1	.15			.08	.01								
4	.57	4	.59			.69	.10	1	.73	1	.73	1	1	.73	.16
1	.14					.01	.00								
3	.43					1.06	.28	9	6.57					.21	.16
13	1.85	3	.44			1.31	.19								
20	2.85					1.35	.19								
142	20.22					9.10	1.30	44	32.14					2.07	1.51
129	18.37					2.08	.30	2	1.46					.13	.01

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE No. 73.—Admissions to sick report, discharges, deaths, and noneffectiveness, with Canal Zone, and China,

Serial Nos.	International classification.	Mean strength.....	Alaska, officers and enlisted men.									
			S. G. O., 770—A. G. O., 767.									
			Admissions.		Discharges.			Deaths.			Non-effective.	
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
Causes of admission to sick report.												
200-202	87	Diseases of the larynx.....	1	1.30							0.01	0.01
203-204	88	Diseases of the thyroid body.....	1	1.30							.08	.04
205-206	89-90	Bronchitis.....	9	11.69							.27	.35
207	91	Broncho-pneumonia.....										
208	92	Pneumonia.....			1	1.34						
209-215	93	Pleurisy.....										
216-217	94	Pulmonary congestion and pulmonary apoplexy.....										
219	96	Asthma.....										
220	97	Pulmonary emphysema.....										
222	98b	Hay fever.....										
224-227	99a	Diseases of the teeth and gums.....										
228-231	99b	Other diseases of the mouth and annexa.....										
232-236	100	Diseases of the pharynx.....	26	33.77							.36	.47
238	102	Ulcer of stomach.....	13	16.88								
239-244	103	Other diseases of stomach (cancer excepted).....	13	16.88							.14	.18
245-253	105	Diarrhea and enteritis.....	4	5.19							.07	.09
254	106	Ankylostomiasis.....	1	1.30							.02	.03
255-259	107	Intestinal parasites.....										
260	108	Appendicitis.....	8	10.39							.59	.77
261-263	109	Hernia.....	4	5.19							.23	.43
264-267	110a	Diseases of the anus and fecal fistula.....										
268-272	110b	Other diseases of the intestines.....	5	6.49							.06	.06
276	114	Biliary calculi.....										
277-281	115	Other diseases of liver and gall bladder.....	3	3.90							.06	.08
288	119	Acute nephritis.....										
289-291	120	Bright's disease.....	1	1.30				1	1.30		.27	.34
292-299	122	Other diseases of the kidney and annexa.....	1	1.30							.06	.08
303-306	124	Diseases of the bladder.....	1	1.30							.03	.04
304	124b	Enuresis.....	1	1.30							.03	.04
307-309	125	Diseases of the urethra, urinary abscess, etc.....										
310-312	126	Diseases of the prostate.....										
313-319	127	Diseases of the male genital organs (nonvenereal).....	5	6.49							.16	.21
322-323	143	Furuncle and carbuncle.....	2	2.60							.03	.04
324-325	144	Acute abscess and cellulitis.....	1	1.30							.06	.08
352-357	146	Diseases of the bones.....	2	2.60							.13	.16
358-360	147	Diseases of the joints.....	2	2.60							.02	.03
367	147g	Flat foot.....	5	6.49	4	5.37					.05	.07
372	150	Congenital malformations.....	10	12.99							.11	.14
373-374	154	Senility.....										
375	189Aa	Fabricula, simple continued, and other fevers of undetermined causation.....										
379	189Ba	Under observation, undiagnosed, and unknown.....										
380	189Bb	Malingering.....										

¹ Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for American troops serving in Alaska, Panama year 1916—Continued.

Panama Canal Zone, officers and enlisted men.										China, officers and enlisted mn.									
S. G. O., 7,023—A. G. O., 7,025.										S. G. O., 1,300—A. G. O., 1,300.									
Admissions.		Discharges.		Deaths.		Non-effective.				Admissions.		Discharges.		Deaths.		Non-effective.			
Number.	Ratio.	Number.		Number.		Number.	Ratio.			Number.	Ratio.	Number.		Number.		Number.	Ratio.		
		(1)	(2)	(1)	(2)							(1)	(2)	(1)	(2)				
2	0.28					0.02	0.00			3	2.19					0.04	0.03		
4	.57	1	2	0.30		.73	.10			1	.73					.01	.01		
276	30.30					6.41	.91			43	31.41					1.08	.79		
2	.28					.04	.01			2	1.46					.16	.12		
2	.28					.08	.01			9	6.57	1	0.73	4	4	2.92	.40	.29	
24	3.42	1	1	.15		1.27	.18			4	2.92					.35	.26		
1	.14					.01	.00			1	.73					.02	.02		
2	.28					.46	.07												
3	.43					.04	.01												
21	2.99					.34	.05			1	.73					.01	.00		
3	.43					.04	.01			5	3.65					.04	.03		
226	32.18					4.25	.61			6	4.38					.05	.03		
2	.28			1	1	.21	.03			77	56.25					1.07	.78		
60	9.82	1	.15			1.25	.18			3	2.19					.13	.10		
217	30.90	1	1	.14		3.61	.51			95	69.39					.89	.65		
4	.57					.08	.01			2	1.46					.02	.01		
80	11.39			1	1	6.38	.91			19	13.68					1.95	1.42		
31	4.41	1	.15	1	1	2.20	.31			6	4.38					.84	.61		
17	2.42					1.14	.16												
342	43.70	1	.15			4.84	.69			60	50.40					.78	.57		
1	.14					.10	.01												
23	3.27					.81	.11			18	13.15					.57	.42		
4	.57					.15	.02			1	.73					.05	.04		
4	.57	2	.30			.67	.10			3	2.19	2	1.46			.19	.14		
13	1.85					1.34	.19			1	.73					.17	.13		
16	2.28					.71	.10			1	.73	2	1.46			.06	.04		
2	.28					.14	.02			1	.73	2	1.46			.06	.04		
10	1.42					.18	.03			6	4.38					.06	.04		
5	.71					.15	.02												
18	2.56	1	.15			.74	.11			11	8.04					.17	.12		
184	26.20					2.67	.38			15	10.96					.33	.24		
143	20.37					3.35	.48			15	10.95					.61	.44		
36	5.13	1	.15			2.39	.34			5	3.65					.07	.05		
21	2.99	2	.30			2.10	.30			8	5.84	1	.73			.83	.60		
28	3.99	8	1.18			1.42	.20			9	6.57	3	2.19			.47	.34		
32	4.56					1.01	.15			1	.73					.01	.01		
1	.14					.00	.01												
22	3.13					.60	.10												
4	.57	1	.15			.08	.01			1	.73					.17	.13		
1	.14					.05	.01												

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE NO. 73.—Admissions to sick report, discharges, deaths, and noneffectiveness, with Canal Zone, and China,

Serial Nos.	International classification.	Alaska, officers and enlisted men.										
		Mean strength.....	S. G. O., 770—A. G. O., 767.									
		Causes of admission to sick report.	Admissions.		Discharges.		Deaths.		Non-effective.			
			Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
					(1)	(2)		(1)	(2)			
AFFECTIONS PRODUCED BY EXTERNAL CAUSES.												
426-434	155-163	Suicides, all.....										
435	164	Poisoning by food.....										
436	165a	Venomous bites and stings.....										
437	165b	Other poisoning (deleterious gases excepted).....	1	1.30				1	1.30			
438	166	Conflagration.....	2	2.60				3	3.91			
439	167	Burns (conflagrations excepted).....										
442	169	Drowning, accidental.....										
443	170	Traumatism by firearms (other than specified).....	2	2.60								
444	170a	Shot by sentry or guard.....										
445	171	Traumatism by cutting or piercing instruments.....	15	19.48								
446	172	Traumatism by fall.....	18	23.38								
447	173	Traumatism in mines and quarries.....										
448	174	Traumatism by machines.....										
449	175	Traumatism by other crushing.....										
450	176	Injuries by animals.....										
452	178	Effects of excessive cold.....	7	9.09								
453	179	Effects of heat.....										
456-458	182-4	Homicides, all.....	27	35.06								
460	186	Other external violence.....										
462-466		Killed or wounded in action.....										
462		By bullet.....										
DISEASES AND INJURIES GROUPED.												
		General diseases.....	36	46.75		3	4.03			0.74	0.96	
1-19		Epidemic diseases.....	6	7.79						.06	.07	
20-59		Other general diseases.....	30	38.96		3	4.03			.68	.89	
		Diseases of the nervous system and organs of special sense.....	16	13.78		6	8.05			.35	.45	
60-74		Of the nervous system.....	7	2.09		6	8.05			.22	.28	
75		Of the eye and its annexa.....	6	7.79						.09	.11	
76		Of the ear and its annexa.....	3	3.90						.04	.06	
77-85		Diseases of the circulatory system.....	11	14.29						.34	.44	
86-98		Diseases of the respiratory system.....	13	16.88		1	1.34			.33	.43	
99-118		Diseases of the digestive system.....	64	83.12						1.68	2.12	
119-127		Diseases of the genito-urinary system.....	10	12.99				1	1.30	.55	.71	
142-145		Diseases of the skin and cellular tissue.....	9	11.69						.27	.35	
146-149		Diseases of the organs of locomotion.....	17	22.08		4	5.37			.49	.63	
150		Malformations, etc.....	10	12.99						.11	.14	
154		Diseases, results of old age.....										
189		Ill-defined diseases.....										
		Total for disease.....	186	241.56		14	18.79		1	1.30	4.80	
155-186		External causes.....	75	97.40		2	2.68		4	5.22	2.14	
		Total for disease and external causes.....	261	338.96		16	21.48		5	6.52	6.93	

¹ Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for American troops serving in Alaska, Panama
July 1916—Continued.

Panama Canal Zone, officers and enlisted men.										China, officers and enlisted men.									
S. G. O., 7,023—A. G. O., 7,025.										S. G. O., 1,369—A. G. O., 1,369.									
Admissions.		Discharge.			Deaths.			Non-effective.		Admission.		Discharges.			Deaths.			Non-effective.	
Number	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.	Number.	Ratio.	Number.		Ratio.	Number.		Ratio.	Number.	Ratio.
		(1)	(2)		(1)	(2)						(1)	(2)		(1)	(2)			
2	0.28				1	3	0.42			1	0.73				2	2	1.46		
4	.57									20	14.61								
4	.57																		
10	1.42									1	.73								
32	4.56									1	.73				1	1	.73		
					6	6	.85												
15	2.14	2	0.28		2	2	.28			3	2.19								
180	25.63									9	6.57								
209	29.76	2	.28		1	1	.14			35	25.57								
7	1.00																		
63	8.97	1	.15		2	2	.28			3	2.19								
63	8.97																		
19	2.71				2	2	.28			1	.73								
2	.28				1	1	.14												
387	55.10	2	.30							57	4.04								
		1	.15																
		1	.15																
1,857	264.42	41	6.04		1	4	.57	65.79	9.37	485	354.27	5	3.65		5	3.65	22.22	16.28	
882	125.59							23.10	3.29	60	43.83				1	1	.73	2.04	1.49
975	138.83	41	6.04		1	4	.57	42.68	6.08	425	310.45	5	3.65		4	2.92	20.17	14.74	
278	39.58	9	37	5.45	1	2	.28	15.56	2.22	31	22.64	3	2.19				1.16	.85	
128	17.80	9	31	4.57	1	2	.28	9.78	1.39	16	11.69	2	1.46				.73	.53	
83	13.24		3	.44				4.04	.58	6	4.35						.12	.09	
60	8.54		3	.44				1.73	.25	9	6.57	1	.73				2.31	.28	
254	36.17	1	9	1.33				15.30	2.18	54	39.44				1	1	.73	2.44	1.78
446	63.51	1	3	.44	1	1	.14	11.44	1.63	66	48.21	1	.73		4	4	2.92	2.21	1.61
1,081	147.66	3	.44		4	4	.57	25.27	3.60	300	19.14						6.35	4.62	
73	10.39	3	.44					4.23	.60	23	16.80	4	2.92				.71	.52	
674	95.97	1	.15					15.00	2.14	56	40.91						1.73	1.26	
197	28.05	13	1.92					10.16	1.45	49	35.79	4	2.92				1.66	1.22	
32	4.56							1.02	.15	1	.73						.01	.01	
1	.14							.09	.01										
29	4.27	1	.15					.85	.12	1	.73						.17	.13	
4,878	694.67	11	111	16.36	7	11	1.57	164.66	23.45	1,066	778.67	18	13.15	10	11	8.04	38.64	28.22	
1,012	144.10	1	14	2.06	15	17	2.42	28.77	4.10	131	95.69			3	3	2.19	3.21	2.35	
5,890	838.67	12	126	18.43	22	28	3.99	193.45	27.55	1,197	874.36	18	13.15	13	14	10.23	41.85	30.57	

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE No. 74.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for American troops, total officers and enlisted men, and separately for white and colored serving in Hawaii, year 1916.

		Hawaii, officers and enlisted men.										Hawaii, enlisted men.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		S. G. O., 8,789—A. G. O., 8,810.										8,476																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Serial No.	International classification.	Admissions.				Discharges.				Deaths.				Noneffective.				Admissions.				Discharges.				Deaths.				Noneffective.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		Num-ber.		Ratio.		Num-ber.		Ratio.		Num-ber.		Ratio.		Num-ber.		Ratio.		Num-ber.		Ratio.		Num-ber.		Ratio.		Num-ber.		Ratio.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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[illegible]

Number of discharges and deaths which actually occurred.

Number of discharges and deaths, including those of cases invalidated home from the United States.

[illegible]

1 Number of discharges and deaths which actually occurred.
2 Number of discharges and deaths, including those of cases invalidated home and deducted from the United States.
3 Noneffective cases for individual external causes not tabulated.

TABLE No. 74.—Admissions to sick report, discharges, deaths, and non-effectiveness, with ratios per 1,000 of mean strength, for American troops, total officers and enlisted men, and separately for white and colored serving in Hawaii, year 1916—Continued.

Serial No.	Num- bers of the in- ter- na- tional clas- sifi- cation.	Hawaii, enlisted men, white.										Hawaii, enlisted men, colored.									
		6,668.										1,808.									
		Admissions.		Discharges.		Deaths.		Non-effective.		Admissions.		Discharges.		Deaths.		Non-effective.					
		Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.				
		Causes of admission to sick report.																			
1	1																				
7-11	4	1	0.15																		
10		16	2.40																		
13	5b	16	2.40																		
14		1	1.15																		
17	9	23	3.45																		
18	10	1	1.15																		
21-23	14	98	14.70																		
21		33	4.95	2	0.30																
22		3	.45																		
23		21	3.15	2	.30																
34	19c	8	1.20																		
37	20	1	1.15			1	0.15														
42-46	25	1	1.15																		
49-57	28-34	1	3.00	20	3.00	1	.75	1.95	.27	7	3.87	1	.5	2.77	1	0.55	.52	.29			
49-51	29	16	2.40	18	2.70	1	1	1.00	.15	7	3.87	1	.5	2.77	1	0.55	.52	.29			
52	30-34	1	1.15			1	.15	.16	.01												
53-57	37-38	3	.45	2	.30			.89	.11												
58-74	39	286	87.88	1	1.20			23.91	5.09	246	136.06	4	2.21					13.65	7.55		
59-64	37	120	18.00	1	.75			8.97	1.35	60	33.19	4	2.21					4.36	2.41		
65-67	38a	161	24.15					10.16	1.48	82	45.35							6.70	3.15		
68-74	38b	305	45.74	3	.45			14.78	2.22	104	57.52							3.59	1.99		
75-79	39-45	4	.60					.53	.08												
80	46	10	1.50					.14	.04	2	1.11							.03	.02		
81-85	47-48	5	.75	1	.15			.10	.02	5	2.77							.14	.08		
81-82	47	5	.75	1	.15			.10	.02	3	1.66							.15	.07		
83-85	48	3	.45					.65	.10	2	1.11							.02	.01		
89		3	.45	3	.45			.65	.10	15	8.30										
97-100	56	81	12.15	1	.15			1.24	.19	15	8.30							.28	.15		

TABLE No. 74.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for American troops, total officers and enlisted men, and separately for white and colored serving in Hawaii, year 1916.—Continued.

		Hawaii, enlisted men, white.				Hawaii, enlisted men, colored.									
		6,668				1,808									
Serial No.	Num- bers of the in- ternat- ional classifi- cation.	Mean strength.....	Cases of admission to sick report.												
			Admissions.		Discharges.		Deaths.		Noneffective.						
			Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.	Num- ber.	Ratio.					
322-323	143		107	16.05											
324-325	144		144	21.60											
326-327	145		7	1.05											
328-360	146		14	2.10		2	0.30								
361-362	147		33	4.95		5	.75								
363-364	147a		27	5.04											
365-366	147b		3	.45											
367-368	148		8	1.20											
369-370	148a		3	.45											
379	159Ba														
380	159Bb														
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹															
426-434	155-163		2	.30											
435	164		21	3.15		8	1.20								
436	165a														
437	165b														
438	166														
439	167		24	3.60											
440	168		1	.15											
441	168a														
442	169		442	66.30		10	1.50								
443	170		10	2.40		1	.15								
444	170a														
445	171														
446	172		59	8.85											
447	173		186	27.90		3	.45								
448	173a														
449	173b														
450	173c														
451	173d														
452	173e														
453	173f														
454	173g														
455	173h														
456	173i														
457	173j														
458	173k														
459	173l														
460	173m														
461	173n														
462	173o														
463	173p														
464	173q														
465	173r														
466	173s														
467	173t														
468	173u														
469	173v														
470	173w														
471	173x														
472	173y														
473	173z														
474	174a														
475	174b														
476	174c														
477	174d														
478	174e														
479	174f														
480	174g														
481	174h														
482	174i														
483	174j														
484	174k														
485	174l														
486	174m														
487	174n														
488	174o														
489	174p														
490	174q														
491	174r														
492	174s														
493	174t														
494	174u														
495	174v														
496	174w														
497	174x														
498	174y														
499	174z														
500	175a														
501	175b														
502	175c														
503	175d														
504	175e														
505	175f														
506	175g														
507	175h														
508	175i														
509	175j														
510	175k														
511	175l														
512	175m														
513	175n														
514	175o														
515	175p														
516	175q														
517	175r														
518	175s														
519	175t														
520	175u														
521	175v														
522	175w														
523	175x														
524	175y														
525	175z														
526	176a														
527	176b														
528	176c														
529	176d														
530	176e														
531	176f														
532	176g														
533	176h														
534	176i														
535	176j														
536	176k														
537	176l														
538	176m														
539	176n														
540	176o														
541	176p														
542	176q														
543	176r														
544	176s														
545	176t														
546	176u														
547	176v														
548	176w														
549	176x														
550	176y														
551	176z														
552	177a														
553	177b														
554	177c														
555	177d														
556	177e														
557	177f														
558	177g														
559	177h														
560	177i														
561	177j														
562	177k														
563	177l														
564	177m														
565	177n														
566	177o														
567	177p														
568	177q														
569	177r														
570	177s														
571	177t														
572	177u														
573	177v														
574	177w														
575	177x														
576	177y														
577	177z														

[illegible]

Number of discharges and deaths which actually occurred.
Number of discharges and deaths, including those of cases invalidated home and deducted from the United States.
Number of deaths for individual external causes not tabulated.

TABLE No. 75.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ports, for officers and native troops serving in Porto Rico,*

Serial Nos.	International classification.	Causes of admission to sick report.	Army transports, officers and enlisted men.							
			Mean strength.....							
			880							
			Admissions.		Discharges.		Deaths.		Non-effectiveness.	
			Number.	Ratio.	Number.	Ratio.	Number.		Number.	Ratio.
							(1)	(2)		
7-11	4	Malaria	18	20.45					0.62	0.71
7		Æstivo-autumnal fever.....							.11	.13
8		Malarial cachexia.....	2	2.27					.12	.14
9		Quartan malarial fever.....								
10		Tertian malarial fever.....	15	17.05					.39	.44
11		Undetermined malarial fever.....	1	1.14					.00	.00
12	5	Smallpox and varioloid.....	1	1.14					.02	.12
13	5b	Vaccinia.....	2	4.55					.05	.06
14	6	Measles.....	16	18.18					.40	.46
17	9	Diphtheria.....	1	1.14					.01	.02
18	10	Influenza.....	11	12.50					.16	.18
19	12	Asiatic cholera.....								
21-23	14	Dysentery.....	1	1.14					.91	1.03
21		Bacillary.....								
22		Entamoebic.....	1	1.14					.91	1.03
23		Unclassified.....								
27	18	Erysipelas.....								
29	19b	Dengue.....								
34	19g	Mumps.....	22	25.00					.51	.58
37	20	Purulent infection and septicemia.....								
41	24	Tetanus.....								
48	27	Beriberi.....								
49-57	28-34	Tuberculosis, all.....	2	2.27			1	1	1.14	5.44 6.18
49-51	28	Tuberculosis of lungs.....							5.02	5.70
52	29	Miliary tuberculosis, acute.....					1	1	1.14	.06 .07
53-57	30-34	Tuberculosis of other organs.....							.36	.40
59-74	37-38	Veneral diseases, all.....	170	193.18					3.02	3.44
59-64	37	Syphilis.....	10	11.36					1.44	1.64
65-67	38a	Soft chancre.....	57	64.77					.31	.36
68-74	38b	Gonococcus infection.....	103	117.05					1.27	1.44
75-79	39-45	Cancer and other malignant tumors.....					1	1.14	.28	.32
80	46	Benign tumors.....								
81-85	47-48	Rheumatism, articular, all.....	2	2.27					.10	.12
81-82	47	Acute articular rheumatism.....	2	2.27					.05	.06
83-85	48	Chronic articular rheumatism.....							.05	.06
87-88	50	Diabetes.....	1	1.14						
89	51	Exophthalmic goitre.....							.33	.37
97-100	56	Alcoholism and results.....	3	3.41					.72	.82
101-102	57-58	Chronic occupational poisoning.....							.03	.03
103-104	59	Other chronic poisoning, including drug habit.....							.02	.03
108	61a	Epidemic cerebrospinal meningitis.....								
109	62	Locomotor ataxia.....							.12	.13
110-115	63	Other diseases of spinal cord.....							.09	.10
116	64	Cerebral hemorrhage, apoplexy.....								
117-119	66	Paralysis without specified cause.....	1	1.14					.06	.07
120-126	67-68	Mental alienation.....	9	10.23					6.16	6.92
127	69	Epilepsy.....	2	2.27					.67	.76
129-133	73	Neuralgia and neuritis.....	4	4.55					.53	.61
138-141	75a	Follicular conjunctivitis.....	3	3.41					.13	.15
142	75b	Trachoma.....							.03	.03
166	77	Pericarditis.....								
167	78	Acute endocarditis.....								
169-174	79	Organic heart disease.....	1	1.14					1.04	1.18
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.....								
178-179	82	Embolism and thrombosis.....								
181	83b	Hemorrhoids.....							.03	.03
183	83d	Varicose veins.....							.10	.11
184	83e	Varicocele.....								
185-187	84	Diseases of the lymphatic system.....	2	2.27					.10	.12
193-199	86	Diseases of the nasal fossae.....	3	3.41					.10	.11
200-202	87	Diseases of the larynx.....	1	1.14					.07	.08

1 Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for officers and enlisted men serving on Army trans-
for native troops in Philippine Islands, year 1916.

Porto Rico, officers and enlisted native troops.								Philippine Islands, native troops.							
991								5,579							
Admissions.		Discharges.		Deaths.		Non-effective.		Admissions.		Discharges.		Deaths.		Non-effective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
69	69.63					1.59	1.60	242	43.38					6.34	1.14
32	32.29					.92	.92	74	13.26					2.47	.44
								2	.36					.08	.02
37	37.34					.67	.68	3	.54					.07	.01
								154	27.60					3.58	.63
								9	1.61					.19	.03
1	1.01					.21	.21	9	1.61			1	.18	.04	.12
								5	1.43					.12	.02
								5	.90					.35	.06
248	250.25					3.37	3.40	21	3.76					.31	.06
7	7.06					.18	.18	2	.36			1	.18	.13	.02
3	3.03					.08	.08	27	4.84					1.23	.22
								13	2.33					.78	.14
4	4.04					.10	.10	10	1.79					.41	.07
								4	.72					.06	.01
								1	.18					.01	.00
22	22.20					.63	.64	63	11.12					1.45	.26
								29	5.20					1.21	.22
								2	.36					.34	.06
								1	.18					.16	.03
								2	.36					.40	.07
5	5.05	5	5.24			.37	.37	17	3.05	16	2.87	1	.18	1.99	.36
4	4.04	3	3.14			2.48	2.51	17	3.05	16	2.87	1	.18	1.99	.36
		2	2.09												
1	1.01					.16	.16								
80	80.73	1	1.06			4.79	4.84	167	29.94	3	.54	1	.18	9.08	1.79
32	32.29					2.48	2.51	27	4.84	1	.18			1.95	.35
22	24.22					1.46	1.27	13	2.33					.42	.08
24	24.22					1.06	1.06	127	22.76	2	.36			7.61	1.36
								4	.72			3	.54	.59	.11
1	1.01					.02	.02	10	1.79					.91	.16
4	4.04					.37	.37	19	3.41					.89	.16
1	1.01					.01	.01	19	3.41					.89	.16
3	3.03	1	1.06			.36	.36								
1	1.01					.00	.00	6	1.08					.02	.00
2	2.02	1	1.06			.20	.20	3	.54			2	.36	.17	.03
								1	.18					.43	.08
1	1.01	1	1.06			.19	.19	5	.90	4	.72			.67	.12
3	3.03					.03	.03	1	.18					.02	.00
6	6.05					.14	.14	12	2.15					.14	.02
4	4.04					.08	.08	73	13.08					1.29	.23
								4	.72					.12	.02
1	1.01					.10	.10	2	.36	1	.18	1	.18	.19	.03
								1	.18					.05	.01
2	2.02					.02	.02	7	1.25					.21	.04
								2	.36					.08	.01
								1	.18					.02	
18	18.16					.82	.83	17	3.05					.95	.17
30	30.27					.59	.60	50	8.96					.54	.10
3	3.03					.03	.03	2	.36					.06	.01

*Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE No. 75.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ports, for officers and native troops serving in Porto Rico, for

Serial Nos.	Inter-national classification.	Army transports, officers and enlisted men.										
		Mean strength.....	880									
		Causes of admission to sick report.	Admissions.		Discharges.		Deaths.			Non-effective.		
			Number.	Ratio.	Number.	Ratio.	Number.		Ratio.	Number.	Ratio.	
						(1)	(2)					
203-204	88	Diseases of the thyroid body.....								0.05	0.05	
206-206	89-90	Bronchitis.....	46	52.27						1.94	2.20	
207	91	Broncho-pneumonia.....										
208	92	Pneumonia.....	6	6.82						.28	.31	
209-215	93	Pleurisy.....	8	9.09						1.23	1.40	
216-217	94	Pulmonary congestion and pulmonary apoplexy.....										
219	96	Asthma.....								.30	.34	
221	96a	Hæmoptysis.....										
222	96b	Hay fever.....										
224-227	99a	Diseases of the teeth and gums.....	4	4.55						.10	.12	
228-231	99b	Other diseases of the mouth and annæxa.....										
232-236	100	Diseases of the pharynx.....	66	75.00						.75	.85	
238	102	Ulcer of the stomach.....								.02	.03	
239-244	103	Other diseases of stomach (cancer excepted).....	7	7.95						.30	.34	
245-253	105	Diarrhea and enteritis.....	19	21.59						.55	.62	
254	106	Ankylostomiasis.....										
255-259	107	Intestinal parasites.....										
260	108	Appendicitis.....	4	4.55						.18	.21	
261-263	109	Hernia.....	1	1.14						.14	.16	
264-267	110a	Diseases of the anus and faecal fistula.....										
268-272	110b	Other diseases of the intestines.....	19	21.59						.71	.81	
275	113	Cirrhosis of liver.....										
276	114	Biliary calculi.....										
277-281	115	Other diseases of liver and gall bladder.....	2	2.27						.14	.16	
283-284	117	Simple peritonitis.....	1	1.14						.01	.01	
288	119	Acute nephritis.....	2	2.27						.04	.04	
289-291	120	Bright's disease.....								.92	1.04	
293-299	122	Other diseases of the kidney and annæxa.....								.15	.17	
303-306	124	Diseases of the bladder.....								.47	.53	
304	124b	Enuresis.....								.38	.43	
307-309	125	Diseases of the urethra, urinary abscess, etc.....	2	2.27						.02	.02	
313-319	127	Diseases of the male genital organs (non venereal).....	3	3.41						.10	.12	
322-323	143	Furuncle and carbuncle.....	7	7.95						.08	.10	
324-325	144	Acute abscess and cellulitis.....	4	4.55						.17	.20	
352-357	146	Diseases of the bones.....	2	2.27						.26	.30	
358-360	147	Diseases of the joints.....	1	1.14						.09	1.01	
367	147c	Flat foot.....								2.74	3.11	
372	150	Congenital malformations.....								.21	.24	
373-374	154	Senility.....								.02	.02	
375	189Aa	Febricula, simple continued, and other fevers of undetermined causation.....	10	11.36						.09	.10	
379	189Ba	Under observation, undiagnosed and unknown.....								.23	.26	
380	189Bb	Malingering.....	2	2.27						.02	.02	

1 Number of discharges and deaths which actually occurred.

ratios per 1,000 of mean strength, for officers and enlisted men serving on Army trans-
native troops in Philippine Islands, year 1916—Continued.

Porto Rico, officers and enlisted native troops.								Philippine Islands, native troops.							
991								5,579							
Admissions.		Discharges.		Deaths.		Non-effective.		Admissions.		Discharges.		Deaths.		Non-effective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
9	9.08					0.29	0.30	187	33.52					4.10	0.74
1	1.01					.08	.08	2	.36			1	0.18	.11	.02
1	1.01					.04	.04	15	2.69			1	.18	.99	.18
								9	1.61					.61	.11
5	8.05	1	1.05			.16	.16	7	1.25			2	.36	.14	.03
								8	1.43					.63	.11
								1	.18					.06	.01
8	8.07					.11	.11	17	3.05					.28	.05
								4	.72					.05	.01
24	24.22					.30	.30	59	10.58					.87	.16
29	29.26					.32	.33	55	9.86					.59	.11
50	50.45			1	1.01	.82	.83	167	29.93					1.85	.33
5	5.05					.17	.17	16	2.87					.35	.06
4	4.04					.11	.11	8	1.43					.13	.02
								12	2.15					.91	.16
								3	.54	1	0.18			.28	.05
4	4.04					.16	.16	2	.36					.07	.01
20	20.18					.15	.15	284	50.91					2.67	.48
4	4.04					.12	.12	7	1.25	1	.18			.31	.06
								4	.72			1	.18	.14	.02
1	1.01					.03	.03	1	.18					.24	.04
1	1.01					.15	.15	2	.36					.04	.01
14	14.13					.36	.36	21	3.76					.64	.11
34	34.31			1	1.01	.57	.58	105	18.82					2.30	.42
37	37.33					.64	.66	127	22.76					3.56	.64
3	3.03					.13	.13	3	.54					.51	.09
2	2.02					.06	.06	10	1.79	1	.18			1.05	.19
1	1.01					.04	.04	4	.72					.25	.05
38	38.65					.91	.92	32	5.74					1.05	.19
2	2.02					.03	.03	4	.72					.42	.07
2	2.02					.02	.02								

* Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

TABLE NO. 75.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ports, for officers and native troops serving in Porto Rico, for

Serial Nos.	International classification.	Causes of admission to sick report.	Army transports, officers and enlisted men.							
			Mean strength.....							
			890							
			Admissions.		Discharges.		Deaths.		Non-effective.	
			Number.	Ratio.	Number.	Ratio.	Number.		Number.	Ratio.
							(1)	(2)		
		AFFECTIONS PRODUCED BY EXTERNAL CAUSES.¹								
426-434	155-163	Suicides, all.....					1	1	1.14	
435	164	Poisoning by food.....								
436	165a	Venomous bites and stings.....								
437	165b	Other poisoning (deleterious gases excepted).....								
438	166	Conflagration.....								
439	167	Burns (conflagrations excepted).....	2	2.27						
448	170	Traumatism by firearms (other than specified).....								
445	171	Traumatism by cutting or piercing instruments.....	1	1.14						
446	172	Traumatism by fall.....	9	10.23						
448	174	Traumatism by machines.....								
449	175	Traumatism by other crushing.....	4	4.55						
450	176	Injuries by animals.....	1	1.14						
451	177	Starvation.....								
453	179	Effects of heat.....								
455	181	Effects of electricity.....								
456-458	182-4	Homicides, all.....								
460	186	Other external violence.....	10	11.36						
		DISEASES AND INJURIES GROUPED.								
		General diseases.....	252	286.36			2	2	2.27	12.66
	1-19	Epidemic diseases.....	74	84.09						2.69
	20-59	Other general diseases.....	178	202.27			2	2	2.27	9.97
		Diseases of the nervous system and organs of special sense.....	26	29.55						10.09
	60-74	Of the nervous system.....	16	18.18						8.99
	75	Of the eye and its annexa.....	6	6.82						.76
	76	Of the ear and its annexa.....	4	4.55						.34
	77-85	Diseases of the circulatory system.....	4	4.55					1.33	1.61
	86-98	Diseases of the respiratory system.....	64	72.73					3.95	4.50
	99-118	Diseases of the digestive system.....	123	139.77					2.99	3.40
	119-127	Diseases of the genito-urinary system.....	7	7.96					1.72	1.96
	142-145	Diseases of the skin and cellular tissue.....	26	29.55					1.30	1.48
	146-149	Diseases of the organs of locomotion.....	8	9.09					4.53	6.21
	150	Malformations, etc.....	1	1.14					.21	.24
	180	Ill-defined diseases.....	52	59.09					.78	.88
		Total for disease.....	563	639.77			2	2	2.27	39.64
	155-186	External causes.....	28	31.82			1	1	1.14	3.16
		Total for disease and external causes.....	591	671.59			3	3	3.41	42.8

¹ Number of discharges and deaths which actually occurred.² Number of discharges and deaths, including those of cases invalided home and deducted from the United States.

ratios per 1,000 of mean strength, for officers and enlisted men serving on Army trans-native troops in Philippine Islands, year 1916—Continued.

Porto Rico, officers and enlisted native troops.								Philippine Islands, native troops.							
991								5,579							
Admissions.		Discharges.		Deaths.		Non-effective.		Admissions.		Discharges.		Deaths.		Non-effective.	
Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
				1	1.01							1	0.18		
				1	1.01			3	0.54						
				1	1.01			8	1.43						
								9	1.61						
								12	4.15						
10	10.09							84	15.06						
23	23.21							80	14.34	3	0.54				
1	1.01							3	.54						
3	3.03							23	4.12						
								5	.90						
1	1.01							1	.18						
								14	2.51						
								1	.18						
								1	.18			1	.18		
39	39.35							172	30.83						
461	465.19	8	8.38			11.87	11.98	669	119.91	23	4.12	6	1.08	29.92	5.36
370	373.36	1	1.05			6.32	6.37	439	78.69	4	.72	2	.36	14.01	2.51
91	91.83	7	7.23			5.55	5.60	230	41.23	19	3.41	4	.72	15.91	2.85
33	33.31	2	2.09			.89	.89	145	26.99	8	1.44	2	.36	4.26	.76
15	15.14	2	2.09			.58	.58	26	4.66	4	.72	2	.36	1.52	.27
15	15.14					.25	.25	96	17.21	2	.36			2.06	.37
3	3.03					.05	.05	23	4.12	2	.36			.67	.12
28	28.26	1	1.05	1	1.01	1.00	1.01	35	6.27	1	.18	1	.18	1.55	.28
50	50.45	1	1.05			1.19	1.20	253	50.73			3	.54	7.27	1.30
149	150.35			1	1.01	2.36	2.38	634	113.64	2	.36			8.37	1.50
19	19.17					.58	.59	28	5.02			1	.18	1.06	.19
163	114.08			1	1.01	2.40	2.42	385	69.01	1	.18			12.55	2.25
33	33.30					.98	.99	48	8.60	1	.18			2.64	1.47
1	1.01					.04	.04	4	.72					.25	.05
47	47.43					1.02	.03	40	7.17					1.51	.27
934	942.48	12	12.57	3	.03	22.33	22.53	2,271	407.06	36	6.45	13	2.33	69.37	12.43
79	79.72			1	1.01	2.36	2.38	419	75.10	3	.54	2	.36	11.96	2.14
1,013	1,022.20	12	12.57	4	.04	24.69	24.91	2,600	482.17	39	6.99	15	2.69	81.34	14.58

* Noneffectiveness for individual external causes not tabulated.

TABLE NO. 76.—Admissions to sick report, discharges, deaths, and noneffectiveness, with stations placed in comparison with the same data

Serial No.	International classification.	Causes of admission to sick report.	United States.				Mexico (punitive expedition).			
			Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.
1	1	Typhoid fever	0.21	.....	0.02	0.04	0.75	.....	.....	0.07
2	1a	Paratyphoid fever	.31	.....	.....	.05	11.18	.....	.....	.96
7-11	4	Malaria	12.52	.....	.02	.33	30.94	.....	.....	.42
7	.....	Estivo-autumnal fever	.90	.....	.02	.03	9.82	.....	.....	.15
8	.....	Malarial cachexia	.02	.....	.....	.01	.....	.....	.....	.....
9	.....	Quartan malarial fever	.18	.....	.....	.00	.....	.....	.....	.....
10	.....	Tertian malarial fever	10.49	.....	.....	.27	9.07	.....	.....	.15
11	.....	Undetermined malarial fever	.94	.....	.....	.02	12.05	.....	.....	.11
12	5	Smallpox and varioloid	.....	.....	.....	.....	.....	.....	.....	.....
13	5b	Vaccinia	8.47	.....	.....	.10	1.12	.....	.....	.01
14	6	Measles	20.28	0.03	.15	.86	.99	.....	.....	.04
15	7	Scarlet fever	.59	.....	.03	.05	.50	.....	.....	.05
17	9	Diphtheria	.50	.....	.....	.03	.....	.....	.....	.....
18	10	Influenza	38.15	.....	.02	.55	2.48	.....	.....	.02
19	12	Asiatic cholera	.....	.....	.....	.....	.....	.....	.....	.....
21-23	14	Dysentery	3.97	.08	.12	.43	23.61	0.25	0.25	.67
21	.....	Bacillary	.52	.....	.....	.02	1.24	.....	.12	.03
22	.....	Entamoebic	2.08	.08	.10	.35	15.03	.25	.12	.52
23	.....	Unclassified	1.37	.....	.02	.06	7.33	.....	.....	.13
27	18	Erysipelas	.70	.....	.02	.03	.25	.....	.....	.01
29	19b	Dengue	10.50	.....	.....	.14	.....	.....	.....	.....
31	19d	German measles	.18	.....	.....	.....	.....	.....	.....	.....
34	19g	Mumps	3.27	.....	.....	.15	1.62	.....	.....	.03
37	20	Purulent infection and septicemia	.11	.....	.08	.00	.12	.....	.37	.00
42-46	25	Mycoses	.10	.....	.....	.01	.....	.....	.....	.....
49-57	28-34	Tuberculosis, all	3.53	1.94	.28	2.64	1.99	2.11	.12	.05
49-51	28	Tuberculosis of lungs	3.22	1.86	.24	2.54	1.49	2.11	.12	.03
52	29	Miliary tuberculosis, acute	.....	.02	.....	.00	.....	.....	.....	.....
53-57	30-34	Tuberculosis of other organs	.32	.09	.03	.10	.49	.....	.....	.02
58	36	Scaliosis (rickets)	.05	.02	.....	.01	.12	.....	.....	.00
59-74	37-38	Venerable diseases, all	91.23	1.63	.15	5.58	66.84	2.73	.25	2.21
59-64	37	Syphilis	18.36	.65	.13	1.88	21.62	1.49	.25	.74
65-67	38a	Soft chancre	18.02	.....	.....	1.06	12.67	.....	.....	.44
68-74	38b	Gonococcus infection	54.84	.98	.02	2.65	32.55	1.24	.....	1.03
75-79	39-45	Cancer and other malignant tumors	.28	.05	.13	.08	.37	.12	.....	.01
80	46	Benign tumors	1.48	.....	.....	.06	.87	.25	.....	.04
81-85	47-48	Rheumatism, articular, all	6.74	.18	.02	.51	7.46	.49	.....	.21
81-82	47	Acute articular rheumatism	4.98	.03	.02	.36	5.84	.12	.....	.16
83-85	48	Chronic articular rheumatism	1.76	.15	.....	.15	1.62	.37	.....	.05
87-88	50	Diabetes	.18	.11	.02	.04	.....	.25	.....	.....
89	51	Exophthalmic goiter	.26	.15	.....	.07	.37	.25	.....	.00
97-100	56	Alcoholism and results	12.77	.15	.03	.22	.87	.12	.....	.01
101-102	57-58	Chronic occupational poisoning	.03	.02	.....	.00	.....	.....	.....	.....
103-104	59	Other chronic poisoning, including drug habit	.31	.02	.....	.02	.37	.12	.....	.02
105-106	60	Encephalitis	.....	.....	.....	.....	.12	.....	.12	.00
107	61	Simple meningitis	.02	.02	.....	.00	.....	.....	.....	.....
108	61a	Epidemic cerebrospinal meningitis	.20	.02	.15	.02	.....	.....	.....	.....
109	62	Locomotor ataxia	.20	.08	.02	.06	.12	.....	.....	.00
110-115	63	Other diseases of spinal cord	.08	.02	.....	.01	.....	.....	.....	.....
116	64	Cerebral hemorrhage, apoplexy	.03	.....	.05	.00	.12	.....	.....	.....
117-119	66	Paralysis without specified cause	.28	.02	.....	.04	.....	.....	.....	.....
120-126	67-68	Mental alienation	3.73	2.65	.03	1.00	1.12	1.62	.....	.02
127	69	Epilepsy	1.73	.91	.....	.16	1.24	.62	.....	.03
129-133	73	Neuralgia and neuritis	6.37	.31	.02	.39	5.96	.12	.....	.15
138-141	75a	Follicular conjunctivitis	5.34	.03	.....	.12	5.47	.....	.....	.11
142	75b	Trachoma	.18	.03	.....	.01	.....	.....	.....	.....
166	77	Pericarditis	.08	.02	.02	.01	.12	.....	.....	.00
167	78	Acute endocarditis	.03	.02	.....	.01	.12	.....	.12	.01
169-174	79	Organic heart disease	1.99	.65	.24	.24	1.12	.50	.....	.01
175	80	Angina pectoris	.11	.02	.02	.01	.....	.....	.....	.....
176-177	81	Diseases of the arteries, atheroma, aneurism, etc.	.24	.03	.07	.03	.12	.37	.....	.00
178-179	82	Embolism and thrombosis	.05	.....	.02	.01	.12	.....	.....	.01
181	83b	Hemorrhoids	6.72	.02	.....	.26	11.31	.....	.....	.19
183	83d	Varicose veins	.81	.07	.....	.07	1.12	.37	.....	.02
184	83e	Varicocele	2.17	.02	.....	.11	1.37	.....	.....	.02
185-187	84	Diseases of the lymphatic system	6.02	.....	.....	.45	7.33	.....	.....	.34
193-199	86	Diseases of the nasal fossae	15.50	.03	.....	.24	4.97	.....	.....	.05
200-202	87	Diseases of the larynx	2.54	.02	.02	.05	.62	.....	.....	.01

ratios per 1,000 of mean strength, for American troops (enlisted men) on duty at home for those serving at distant stations, year 1916.

Philippine Islands.				Hawaii.				Alaska.				Panama.			
Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.
				0.12			0.06								
62.95			1.65	2.12			.06					16.60			2.05
17.36			.54									28.48			1.02
.17			.04									.14			.00
.35			.01									.28			.01
43.52			1.04	2.12			.06					32.46			.84
1.55			.03												
.86			.01	.12			.00	1.30			0.00	.43			.00
1.12			.08	2.71			.15					1.14			.05
.26			.07	.12			.00					.14			.00
10.45			.20	12.39			.21	5.19			.07	38.59			.66
.43			.04												
12.00		0.09	.79	3.89			.28					1.28			.09
.52			.02	.35			.02					.14			.00
10.62		.09	.75	2.48	0.24		.22					.43			.05
.86			.03	1.06			.04					.71			.04
.26			.01												
12.26			.20									16.80			.41
.17			.01												
2.85			.15	1.06			.03					.71			.02
.17			.02	.12		0.12	.00	1.30			.00				
				.12			.00								
4.40	2.25	.95	.37	3.19	2.95	.71	.29	1.30	1.34		.02	4.13	3.98	0.14	.38
4.15	2.16	.86	.33	2.71	2.71	.59	.18	1.30	1.34		.02	3.70	3.54	.14	.29
.09		.09	.01	.12		.12	.02					.14	.15		.03
.17		.09	.03	.36	.24		.09					.28	.30		.05
												.28	.15		.02
163.30	1.21	.09	7.77	98.16	1.42		5.61	19.48	1.34		.70	115.62	1.33		5.25
35.84	.60	.09	2.19	21.24	1.06		1.57	2.60			.12	18.94	.74		1.43
35.32			1.22	28.67			1.87	1.30				36.02			1.42
92.14	.60		4.36	48.26	.35		2.17	15.68	1.34		.57	60.66	.59		2.40
.52	.26	.26	.09	.47			.03					.28		.28	.00
1.55			.08	1.42			.03	2.60			.01	.85			.01
5.89	.17		.20				.03	2.60			.03	3.84			.09
2.42			.11	.94			.03	1.30			.01	3.27			.08
1.47	.17		.09	.24			.00	.30			.02	.57			.01
.17		.09	.00									.28		.14	.00
.17	.26		.03	.35	.35		.08	2.60	1.34			.14	.44		.02
15.72	.09		.25	11.33	.12		.18	9.09			.10	12.67			.19
.09			.00									.14	.15		.04
.26			.00	1.88	.12		.02					.28			.00
				.12	.12		.01					.14			.01
.17			.00									.14		.14	.07
.09			.02		.12										
.09		.09	.00												
.17			.01	.71	.24		.02					.85	.14		.04
4.32	3.28	.09	.45	4.83	3.78	.12	.45	2.60	5.37		.12	3.56	2.95		.73
.78	.35		.05	.59	.35		.03					1.71	1.03		.06
5.53	.17		.26	2.24	.47		.17	2.60			.03	4.56			.14
4.32			.07	3.54			.09	1.30			.01	4.98	.15		.18
.09			.01									.14	.15		.01
.09			.01												
.09			.02												
.26		.09	.09												
2.07	.43	.09	.19	.59	.24		.06	1.30			.02	.57	.59		.10
			.12				.00					.14			.00
.17			.01	.12			.03								
.09			.00												
7.77			.23	8.85			.21	11.69			.37	.43			.28
1.12	.09		.10	.47	.12		.04					1.85	.44		.19
3.37			.16	2.00			.15					2.85			.19
8.89			.37	4.25			.23					20.22			1.30
15.37			.21	7.20			.17	1.30			.03	18.37			.30
.86			.01	.12			.00	1.30			.01	.28			.00

TABLE No. 76.—Admissions to sick report, discharges, deaths, and noneffectiveness, with stations placed in comparison with the same data for

Serial No.	International classification.	Causes of admission to sick report.	United States.				Mexico (punitive expedition).			
			Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.
203-204	88	Diseases of the thyroid body.....	0.26	0.08	.....	0.04	0.25	0.12	.....	0.00
205-206	89-90	Bronchitis.....	36.89	.08	.....	.67	20.13	.....	.....	.26
207	91	Broncho-pneumonia.....	.60	.....	0.11	.05	.37	.....	.....	.01
208	92	Pneumonia.....	2.59	.03	.31	.21	2.36	.....	0.37	.09
209-215	93	Pleurisy.....	3.16	.03	.....	.24	3.73	.12	.....	.05
216-217	94	Pulmonary congestion and pulmonary apoplexy.....	.03	.....	.03	.00	.....	.....	.....	.....
219	96	Asthma.....	1.14	.16	.....	.08	.75	.12	.....	.01
220	97	Pulmonary emphysema.....	.03	.02	.....	.00	.....	.....	.....	.....
221	98a	Hemoptysis.....	.08	.....	.....	.00	.....	.....	.....	.....
222	98b	Hay fever.....	.05	.....	.....	.00	.12	.....	.....	.00
224-227	99a	Diseases of the teeth and gums.....	5.50	.....	.....	.12	22.86	.....	.....	.18
228-231	99b	Other diseases of the mouth and annæxæ.....	.99	.....	.....	.03	.37	.....	.....	.01
232-236	100	Diseases of the pharynx.....	65.77	.....	.....	.96	51.93	.....	.....	.72
238	102	Ulcer of stomach.....	.31	.03	.02	.04	.25	.12	.....	.00
239-244	103	Other diseases of stomach (cancer excepted).....	11.41	.15	.....	.29	13.91	.....	.....	.21
245-253	105	Diarrhea and enteritis.....	38.23	.05	.02	.51	190.33	.....	.12	2.15
254	106	Ankylostomiasis.....	.37	.....	.....	.02	.....	.....	.....	.....
255-259	107	Intestinal parasites.....	1.25	.....	.....	.02	.87	.....	.....	.01
260	108	Appendicitis.....	9.61	.05	.18	.73	8.20	.....	.....	.22
261-263	109	Hernia.....	5.10	.48	.08	.80	6.21	.75	.....	.10
264-267	110a	Diseases of the anus and fecal fistula.....	.57	.....	.....	.05	1.12	.....	.....	.03
268-272	110b	Other diseases of the intestines.....	26.25	.18	.....	.41	15.65	.25	.....	.13
275	113	Cirrhosis of liver.....	.13	.02	.02	.01	.25	.....	.12	.00
276	114	Biliary calculi.....	.20	.....	.....	.08	.12	.....	.....	.00
277-281	115	Other diseases of liver and gall bladder.....	3.94	.03	.05	.18	2.24	.....	.....	.05
283-284	117	Simple peritonitis.....	.05	.....	.05	.01	.....	.....	.....	.....
288	119	Acute nephritis.....	.37	.....	.08	.02	.50	.....	.....	.01
290-291	120	Bright's disease.....	.60	.15	.13	.14	.50	.24	.....	.01
293-299	122	Other diseases of the kidney and annæxæ.....	.70	.10	.02	.10	.50	.....	.....	.00
303-306	124	Diseases of the bladder.....	2.77	.36	.....	.12	1.24	.25	.....	.04
304	124b	Enuresis.....	.....	.....	.....	.....	.....	.....	.....	.....
307-309	125	Diseases of the urethra, urinary abscesses, etc.....	1.47	.....	.....	.04	.99	.....	.....	.01
310-312	126	Diseases of the prostate.....	.13	.....	.....	.01	.12	.....	.....	.00
313-319	127	Diseases of the male genital organs (nonvenereal).....	4.49	.02	.....	.17	4.72	.12	.....	.11
322-323	143	Furuncle and carbuncle.....	15.05	.....	.....	.27	16.77	.....	.....	.24
324-325	144	Acute abscess and cellulitis.....	14.66	.....	.....	.41	13.54	.....	.....	.28
332-337	146	Diseases of the bones.....	2.21	.10	.....	.25	3.48	.12	.....	.09
338-360	147	Diseases of the joints.....	4.28	.34	.....	.40	5.84	.50	.....	.13
367	147g	Flat foot.....	.....	.....	.....	.....	.....	.....	.....	.....
372	150	Congenital malformations.....	3.01	.03	.....	.12	.87	.....	.....	.02
373-374	154	Senility.....	.03	.....	.....	.00	.....	.....	.....	.....
375	189Aa	Febricula, simple continued, and other fevers of undetermined causation.....	4.33	.....	.....	.08	24.72	.....	.....	.81
379	189Ba	Under observation, undiagnosed and unknown.....	.86	.02	.07	.05	2.36	.....	.12	.03
380	189Bb	Malingering.....	.46	.....	.....	.03	.37	.....	.....	.00
AFFECTIONS PRODUCED BY EXTERNAL CAUSES. ¹										
426-434	155-163	Suicides, all.....	.08	.....	.57	.....	.....	.....	.50	.....
435	164	Poisoning by food.....	.72	.....	.....	.....	6.83	.....	.....	.....
436	165a	Venomous bites and stings.....	.73	.....	.....	.....	.75	.....	.....	.....
437	165b	Other poisoning (deleterious gases excepted).....	.....	.....	.....	.....	.....	.....	.....	.....
438	166	Conflagration.....	.....	.....	.....	.....	.....	.....	.....	.....
439	167	Burns (conflagrations excepted).....	3.71	.....	.....	.....	3.11	.....	.....	.....
440	168	Absorption of deleterious gases.....	.....	.....	.02	.....	.12	.....	.12	.....
441	168a	Suffocation, strangulation.....	.02	.....	.02	.....	.....	.....	.....	.26
442	169	Drowning, accidental.....	.....	.....	.34	.....	.....	.....	.....	.....
443	170	Traumatism, by firearms (other than specified).....	4.23	.57	.29	.....	8.70	1.24	.....	.37
444	170a	Shot by sentry or guard.....	.05	.02	.05	.....	.12	.12	.....	.....

¹Noneffectiveness for individual external causes not tabulated.

ratios per 1,000 of mean strength, for American troops (enlisted men) on duty at home those serving at distant stations, year 1916—Continued.

Philippine Islands.				Hawaii.				Alaska.				Panama.			
Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.
35.52			0.03	0.83	0.12		0.11	1.30			0.04	0.57	0.30		0.10
26.75			.75	19.52			.37	11.59			.35	39.30			.91
2.26			.02	.24			.01					.28			.01
4.03	0.09	0.09	.05	.35		0.13	.05		1.24			.28			.01
4.32	.09		.28	9.07	.24		.12					3.42	.15		.18
1.09			.00									.14			.00
1.04	.09		.06	1.65			.66					.28			.07
		.20	.02									.43		0.14	.01
.17			.01												
3.89			.08	3.54			.04					2.99			.06
1.55			.03	.59			.01					.43			.01
49.22			.77	21.47			.43	33.77			.47	32.18			.61
.17			.01									.28		.14	.03
14.34	.09		.26	10.26			.15	16.88			.18	9.82	.15		.18
52.59		.09	.63	16.05	.12		.32	5.19			.09	30.90		.14	.51
1.04			.05	.47			.02	1.30			.03				
2.25			.04	.83			.01					.57			.01
12.95	.09	.17	.78	7.79		.24	.61	10.39			.77	11.39		.14	.91
4.49	.09		.39	8.54			.31	5.19			.43	4.41	.15	.14	.31
1.38			.04	1.05			.04					3.42			.16
37.91	.43	.09	.56	25.01			.27	6.49			.06	48.70	.15		.69
			.03	.12			.12					.14			.01
.26															
6.56	.09	.09	.26	4.37			.25	3.90			.06	3.27			.11
.17			.01			.11	.00								
1.90		.1	.09	.59		.12	.07					.57			.02
1.39	.17	.09	.12	.47	.12	.12	.06	1.30		1.30	.34	.57	.30		.10
.78			.06	.24			.03	1.30			.03	1.85			.19
1.81	.09		.08	2.48	.24		.08	1.30			.04	2.28			.10
.69	.09		.03	1.53	.24		.03	1.30			.04	.28			.02
2.07			.03	7.79			.10					1.42			.03
.09			.00	.12			.01					.71			.02
3.89			.13	5.78			.14	6.49			.21	2.56	.15		.11
10.54			.16	13.10			.32	2.60			.04	26.20			.38
17.62			.53	18.88			.54	1.30			.08	20.37			.45
2.85			.11	.83	.36		.10	2.60			.16	5.13	.15		.34
2.94	.52		.21	2.24	.35		.17	2.60			.02	5.99	.30		.30
5.79	1.90		.29	4.72	.94		.25	6.49	5.37		.07	3.99	1.18		.20
6.74	.17		.20	5.31			.09	12.99			.14	4.56			.15
												.14			.01
5.01			.10	.35			.01					3.15			.10
.95			.05	1.30			.05					.57	.15		.01
.26			.02	.83			.01					.14			.01
.09		.53		.24		1.06						.28		.42	
8.89				2.48								.57			
1.21				.47								.57			
.26				.83				1.30		1.30		1.42			
3.20				2.95				2.60		3.91		4.56			
				.12											
		.35				1.30								.85	
1.64	.09			2.12	.12			2.60				2.14	.28	.28	

TABLE No. 76.—Admissions to sick report, discharges, deaths, and noneffectiveness, with stations placed in comparison with the same data for

Serial No.	International classification.	Causes of admission to sick report.	United States.				Mexico (punitive expedition).			
			Admissions.	Discharges.	Deaths.	Noneffective.	Admissions.	Discharges.	Deaths.	Noneffective.
AFFECTIONS PRODUCED BY EXTERNAL CAUSES—continued.										
445	171	Traumatism by cutting or piercing instruments.....	13.53	0.15			5.09			
446	172	Traumatism by fall.....	33.44	.37	0.10		28.33	0.99		
447	173	Traumatism in mines and quarries.....								
448	174	Traumatism by machines.....	.54	.03			.62	.12		
449	175	Traumatism by other crushing.....	9.25	.39	.28		5.47	.25	0.12	
450	176	Injuries by animals.....	12.11	.02	.05		20.50	.12		
451	177	Starvation.....								
452	178	Effects of excessive cold.....	.23							
453	179	Effects of heat.....	1.74		.03		17.21			
454	180	Effects of lightning.....		.02	.02		.12		.12	
455	181	Effects of electricity.....	.02		.02					
456-458	182-184	Homicides, all.....	.08		.26		.25		.87	
459	185	Fractures, causes not specified.....	.03							
460	186	Other external violence.....	49.00	.20	.10		35.03	.37		
462-466		Killed or wounded in action:								
462		By bullet.....	.15	.02	.15		3.35	.25	3.11	
463		By shell.....	.15	.02	.15		3.23	.25	3.11	
466		By other weapon.....					.12			
DISEASES AND INJURIES GROUPED.										
		General diseases.....	224.04	4.38	1.06	12.12	175.92	6.83	.99	4.94
1-19		Epidemic diseases.....	105.06	.11	.36	2.83	75.41	.25	.25	2.30
20-59		Other general diseases.....	118.96	4.27	.70	9.29	100.51	6.58	.75	2.64
		Diseases of the nervous system and organs of special sense.....	32.38	5.00	.24	2.61	29.45	2.98	.12	.55
60-74		Of the nervous system.....	15.27	4.23	.24	1.86	10.19	2.73	.12	.23
75		Of the eye and its annexa.....	10.26	.41		.43	11.43	.25		.19
76		Of the ear and its annexa.....	6.85	.36		.32	7.83			.13
77-85		Diseases of the circulatory system.....	21.07	.90	.36	1.27	24.36	1.37	.12	.66
86-98		Diseases of the respiratory system.....	63.05	.46	.49	1.58	33.42	.37	.37	.50
99-118		Diseases of the digestive system.....	169.77	.98	.36	4.02	314.57	1.94	.37	3.82
119-127		Diseases of the genito-urinary system.....	11.20	.67	.28	.64	8.95	.75		.20
128-145		Diseases of the skin and cellular tissue.....	52.76	.10		1.36	44.73			.88
146-149		Diseases of the organs of locomotion.....	28.79	2.10		1.65	27.21	1.62		.52
150		Malformations, etc.....	3.01	.03		.12	.87			.02
154		Diseases, results of old age.....	.03			.00				
189		Ill-defined diseases.....	6.43	.02	.07	.17	28.08		.12	.86
		Total for disease.....	612.50	14.64	2.90	25.53	687.54	15.16	2.11	12.96
155-186		External causes.....	132.86	2.15	2.33	5.14	122.62	3.75	5.47	2.66
		Total for disease and external causes.....	745.38	16.79	5.13	30.67	810.16	18.89	7.58	15.62

ratios per 1,000 of mean strength, for American troops (enlisted men) on duty at home those serving at distant stations, year 1916—Continued.

Philippine Islands.				Hawaii.				Alaska.				Panama.			
Admissions.	Discharges.	Deaths.	Non-effective.	Admissions.	Discharges.	Deaths.	Non-effective.	Admissions.	Discharges.	Deaths.	Non-effective.	Admissions.	Discharges.	Deaths.	Non-effective.
9.41				8.26	0.12			19.48				25.63			
25.99	0.52	0.09		25.72	.35	0.35		23.38				29.79	0.28	0.14	
.09	.09			.47	.12							1.00			
1.12				9.56								8.97	.15	.28	
10.23	.17	.62		5.54								8.97			
9.67								9.09							
1.69				.47								2.71			
				.24											
.09		.09		.12		.47						.28		.28	
43.25	.38			46.95				35.06				55.10	.30	.14	
													.15		
													.15		
283.20	4.23	1.41	11.91	141.88	5.31	.83	7.11	46.75	4.03		.96	264.42	6.04	.57	9.37
103.90				3.12	.24		.82	7.79			.07	125.59			3.29
184.30	4.23	1.41	8.79	118.67	5.07	.83	6.29	38.96	4.03		.87	138.83	6.04	.57	6.08
40.06	4.53	.19	1.68	19.23	5.43	.12	.97	13.78	8.05		.45	39.58	5.45	.28	2.22
17.40	4.51	.19	1.14	9.79	5.43	.12	.72	2.09	8.05		.28	17.80	4.57	.28	1.39
13.82	.03		.33	6.96			.17	7.79			.11	13.24	.44		.58
8.84			.21	2.43			.08	8.90			.06	8.54	.44		.25
24.83	.47	.19	1.06	18.40	.35		.78	14.29			.44	36.17	1.33		2.18
61.88	.19	.19	1.49	31.97	.35	.12	.90	16.88	1.94		.43	63.51	.44	.14	1.63
182.90	.75	.47	3.89	95.09	.12	.35	2.48	83.12			2.12	147.66	.44	.57	3.60
11.10	.28	.19	.47	17.81	.35	.24	.52	12.90		1.80	.71	10.39	.44		.60
55.30	.28		1.46	84.98	.12		1.57	11.60			.35	95.97	.15		2.14
24.35	3.01		.97	18.17	1.65		.79	22.08	5.37		.63	28.05	1.52		1.45
7.24	.09		.22	5.31			.09	12.99			.14	4.56			.15
												.14			.01
7.24			.19	2.95			.09					4.27	.15		.12
703.06	13.92	2.63	23.33	405.50	13.68	1.65	15.31	241.56	18.79	1.30	6.23	694.67	16.36	1.57	23.45
105.88	1.32	1.79	3.54	109.01	1.89	3.19	3.91	97.40	2.68	5.22	2.78	144.10	2.06	2.42	4.10
808.93	15.23	4.42	26.87	514.51	15.57	4.84	19.22	338.96	21.48	6.52	9.01	838.67	18.43	3.99	27.55

TABLE No. 78.—Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for American troops (enlisted men) on duty at home stations, placed in comparison with the same data for those serving at distant stations, year 1916.

Serial Nos.	Internal classification.	Causes of admission to sick report.	China.				Transports.				Army.			
			Admis- sions.	Dis- charges.	Deaths.	Non- effective.	Admis- sions.	Dis- charges.	Deaths.	Non- effective.	Admis- sions.	Dis- charges.	Deaths.	Non- effective.
1	1	Typhoid fever.									0.20		0.01	0.04
2	2	Paratyphoid fever.	0.73			0.03					1.11			0.11
3	3a	Malaria.	8.77			.16	20.45			0.71	22.71			.59
4	4	Estivo-autumnal fever.					2.27			.13				.17
5	5	Malarial cachexia.									.04			.01
6	6	Quartan malarial fever.	8.04			.12	17.05			.44	15.01			.37
7	7	Tertian malarial fever.	.73			.04	1.14			.02	.01			.04
8	8	Undetermined malarial fever.					4.55			.09	5.51			.07
9	9	Smallpox and varioloid.					13.18			.46	13.25	0.02		.57
10	10	Vaccinia.									.45			.04
11	11	Measles.	5.84		.73	.55	1.14			.02	.37			.03
12	12	Scarlet fever.				.28	12.50			.13	26.04			.43
13	13	Diphtheria.	16.80			.11	1.14			1.03	6.25	.09	.10	.45
14	14	Asiatic cholera.	3.65				1.14			1.03	4.02	.09	.06	.38
15	15	Bacillary dysentery.				.05	1.14			1.71	9.10		.01	.14
16	16	Enteric.	1.46			.14				.01	1.13			.01
17	17	Enteric.	2.19							.08	2.91		.10	.13
18	18	Enteric.	2.92				25.00			.12				.01
19	19	Erysipelas.				.23								
20	20	German measles.	1.46			.11	2.27			0.15	3.46	2.20	.84	1.79
21	21	Purulent infection and septicemia.	1.46	2.19	1.46	.11				0.70	3.14	2.09	.34	1.70
22	22	Mycoses.									.03	.01	.02	.01
23	23	Tuberculosis of lungs.								1.14				
24	24	Miliary tuberculosis, acute.												
25	25	Tuberculosis of other organs.												
26	26	Scoliosis (rickets).												
27	27	Veneral diseases, all.												
28	28	Soft chancre.	284.83	.73	.73	13.95	193.18			3.44	103.35	1.60	.13	3.52
29	29	Gonorrheal infection.	56.25		.73	3.11	11.36			1.64	21.36	.74	.12	1.77
30	30	Benign tumors.	120.53			5.12	64.77			.36	23.56			1.17
31	31	Cancer and other malignant tumors.	108.11	.73		5.72	117.05			1.44	84.42	.87	.01	2.68
32	32	Rheumatism, articular, all.				.00				.52	.04	.04	.13	.07
33	33	Acute articular rheumatism.	4.38			.16	2.27			1.38	.02	.18	.01	.05
34	34	Chronic articular rheumatism.	2.92			.11	2.27			4.70	.18	.18	.01	.37
35	35	Diabetes.	1.46			.05				4.21	.03	.13	.01	.26
36	36	Exophthalmic goiter.					1.14			1.48	.16	.09	.08	.11
37	37									.02	.37	.21	.03	.03

97-100	Alcoholism and results.	16.07	.73	.73	.39	3.41				82	12.00	.13	.03	21
101-102	Chronic occupational poisoning.									.03	.04	.01	..	01
103-104	Other chronic poisoning, including drug habit.	2.19			.04					.03	.46	.03	..	02
105-106	Encephalitis.									..	..	..	..	00
107	Simple meningitis.									..	.01	.01	..	00
61a	Epidemic cerebrospinal meningitis.									..	.01	.01	..	00
108	Locomotor ataxia.									.13	.20	.05	.01	02
62	Other diseases of spinal cord.									.10	.06	.02	..	01
110-115	Cerebral hemorrhage, apoplexy.									..	..	..	..	00
64	Paralysis without specified cause.	2.92	.73		.25	1.14				.07	.33	.03	.04	03
66	Epilepsy.	.73			.02	10.23				.62	8.73	2.73	.04	83
129-133	Neuralgia and neuritis.	.73			.02	2.27				.76	1.46	.76	.01	13
73	Follicular conjunctivitis.	2.92			.02	4.55				.61	5.73	.27	..	31
75a	Trachoma.				.02	3.41				.15	4.98	.03	..	11
76b	Pericarditis.									.03	.13	.03	..	01
77	Acute endocarditis.									..	.07	.01	.01	01
78	Organic heart disease.	.73	.73		.11	1.14				1.18	1.08	.56	.17	01
169-174	Diseases of the arteries, atheroma, aneurism, etc.									..	.09	.01	.01	01
81	Embolism and thrombosis.									..	.19	.06	.04	02
178-179	Hemorrhoids.	6.57			.16					.03	7.56	.01	.01	00
83b	Varicose veins.									.11	.90	.12	..	24
83d	Varicocele.									..	2.37	.01	..	07
185-187	Diseases of the lymphatic system.	32.14			1.51	2.27				.12	8.17	..	..	48
183-199	Diseases of the nasal fossae.	1.46			.03	3.41				.11	13.73	.02	..	22
200-202	Diseases of the larynx.	2.19			.03	1.14				.08	1.79	.01	.01	03
203-204	Diseases of the thyroid body.	.73			.01					.08	.36	.09	..	05
89-90	Bronchitis.	31.41			.79	52.27				2.20	83.88	.05	..	06
205-206	Broncho-pneumonia.	1.46			.12					.31	2.07	.03	.28	04
207	Pneumonia.	6.57	.73		.26	6.52				1.40	3.39	.08	..	15
208	Pleurisy.	2.92			.26	9.09				..	..	..	..	23
209-215	Pulmonary congestion and pulmonary apoplexy.	.73			.02					..	.06	..	.02	00
216-217	Asthma.									.34	1.05	.12	..	07
90	Pulmonary emphysema.									..	.02	.01	..	00
219	Hemoptysis.									..	.10	..	..	00
220	Hay fever.				.00					..	.04	..	..	00
221	Diseases of the teeth and gums.	.73			.08	4.55				.12	6.30	.11	..	11
222	Other diseases of the mouth and amoxa.	3.65			.03					..	.86	..	..	02
223	Diseases of the pharynx.	56.25			1.07	75.00				.85	56.46	.03	.02	84
224-227	Ulcer of stomach.	2.19			.10	7.95				.03	.25	.11	.02	03
228-231	Other diseases of stomach (cancer excepted).	69.39			.65	21.59				.34	11.62	.11	..	25
232-236	Diarrhea and enteritis.	1.46			.01					.62	49.81	.04	.04	64
237	Intestinal parasites.	13.88			1.42	4.55				..	1.24	.03	..	02
238	Appendicitis.	4.38			.61	1.14				.21	9.91	.36	.16	71
239-244	Hernia.	50.40			.57	21.59				.81	28.41	.19	.01	49
245-253	Diseases of the anus and fecal fistula.									..	..	..	..	05
254-267	Other diseases of the intestines.									..	..	..	..	42
268-272	Cirrhosis of liver.									..	..	..	..	01

TABLE No. 76.—Admissions to sick report, discharges, deaths, and non-effectiveness, with ratios per 1,000 of mean strength, for foreign stations, 1916—Con.

Serial Nos.	International classification.	Causes of admission to sick report.	China.				Transporta.				Army.			
			Admissions.	Discharges.	Deaths.	Non-effective.	Admissions.	Discharges.	Deaths.	Non-effective.	Admissions.	Discharges.	Deaths.	Non-effective.
276	114	Biliary calculi.	13.15			0.43	2.37			0.16	0.13			0.02
277-281	115	Other diseases of liver and gall bladder.					4.27			0.18	4.27			0.18
282-284	117	Simple peritonitis.					0.01			0.06	0.04			0.04
285	119	Acute nephritis.	73			0.4	0.06			0.08	0.06			0.08
289-291	120	Bright's disease.	2.19	1.46			2.37			1.04	0.61			0.11
292-299	122	Other diseases of the kidney and annexa.	73			0.13				0.13	0.70			0.13
300-306	124	Diseases of the bladder.	73	1.46		0.34				0.06	0.74			0.09
307-309	124b	Enuresis.	73	1.46		0.4				0.11	0.29			0.07
310-312	125	Diseases of the urethra, urinary abscess, etc.	4.38			0.4	2.37			0.02	2.08			0.04
313-319	126	Diseases of the prostate.								0.01	0.16			0.01
320-322	127	Diseases of the male genital organs (nonvenereal).	8.04			0.13	3.41			0.12	4.48			0.16
323-325	143	Furuncle and carbuncle.	10.96			0.24	7.95			0.10	15.07			0.26
326-328	144	Acute abscess and cellulitis.	10.95			0.44	4.55			0.20	15.44			0.42
329-331	145	Diseases of the bones.	3.65			0.05	2.27			0.80	2.49			0.21
332-337	146	Diseases of the joints.	5.84	.73		0.60	1.14			1.01	3.98			0.34
338-360	147	Diseases of the joints.	6.57	2.19		0.34				3.11	4.11			0.87
361	147b	Flat foot.	73			0.01				0.24	3.62			0.12
362-372	150	Congenital malformations.								0.02	0.03			0.00
373-374	154	Scurl.												
375	154a	Febricula, simple continued, and other fevers of undetermined causation.					11.36			0.10	5.63			0.14
379	189Ba	Under observation, undiagnosed and unknown.	73			0.13				0.26	1.00			0.06
380	189Bb	Malingering.					2.37			0.02	0.44			0.02
AFFECTIONS PRODUCED BY EXTERNAL CAUSES.														
420-434	155-163	Suicides, all.	73			1.46					1.11			
435	164	Poisoning by food.	14.61								2.49			
436	165a	Venomous bites and stings.									0.74			
437	165b	Other poisoning (deleterious gases excepted).									0.86			
438	166	Conflagration.	73								0.02			
439	167	Burns (conflagrations excepted).					2.37				3.86			
440	168	Absorption of deleterious gases.									0.01			
441	168a	Suffocation, strangulation.									0.02			
442	169	Drowning, accidental.				0.78					0.01			
443	170	Traumatism by firearms (other than specified).	2.19								3.90			
444	170a	Shot by sentry or guard.									0.24			
445	171	Traumatism by cutting or piercing instruments.	6.57								12.65			
446	172	Traumatism by fall.	25.57				1.14				0.04			
447	173	Traumatism in mines and quarries.					10.23				30.99			
448	174	Traumatism by machines.									0.01			
449	175	Traumatism by other crushing.	2.19				4.55				8.87			

450	176	Injuries by animals.....	1.14	11.38	.02	.03	10.33
452	178	Effects of excessive cold.....		.21			2.66
453	179	Effects of heat.....		1.72			8.28
454	180	Effects of lightning.....		.01	.01		
455	181	Effects of electricity.....		.03	.01		
456-458	182-4	Homicides, all.....		.11	.29		
459	185	Fractures, causes not specified.....		.02			
460	186	Other external violence.....	11.36	47.60	.25	.07	
462-466		Killed or wounded in action:					
462		By bullet.....		.36	.04	.34	
463		By shell.....		.35	.04	.34	
464		By sword or bayonet.....					
465		By bolo, kris, etc.....					
466		By other weapon.....		.01			
DISEASES AND INJURIES GROUPED.							
1-19		General diseases.....		14.38	4.68	1.09	10.33
20-59		Epidemic diseases.....		3.06	.11	.26	2.66
		Other general diseases.....		11.33	4.57	.83	8.28
60-74		Diseases of the nervous system and organs of special sense.....		11.47	4.76	.21	2.22
75		Of the nervous system.....		10.21	4.19	.21	1.57
76		Of the eye and its annexa.....		.87	.32		.38
77-85		Of the ear and its annexa.....		.39	.26		.27
86-98		Diseases of the circulatory system.....		1.51	.86	.26	1.23
99-118		Diseases of the respiratory system.....		4.50	57.14	.41	1.44
119-127		Diseases of the digestive system.....		3.40	175.80	.83	3.83
128-145		Diseases of the genito-urinary system.....		1.96	11.75	.60	1.59
146-149		Diseases of the skin and cellular tissue.....		1.48	55.25	.11	1.41
150		Diseases of the organs of locomotion.....		5.21	27.01	2.12	1.42
151		Malformations, etc.....		.24	3.62	.03	.12
152		Diseases, results of old age.....			.03		.00
153		Ill-defined diseases.....		.88		.05	.22
154							
155-186		Total for diseases.....		619.22	14.42	2.60	23.41
		External causes.....		3.59	2.11	2.60	4.58
		Total for disease and external causes.....		747.59	16.52	5.20	27.98

TABLE No. 79.—*Showing the most important diseases, by departments in the United States (continental, excluding Alaska), 1916—officers and enlisted men.*

ADMISSIONS, ABSOLUTE NUMBERS.

Diseases.	Eastern Department.	Central Department.	Southern Department.	Western Department.	Recruit depots.	Independent stations.	General hospitals.	Total.	Troops in Mexico.
1. Alcoholismus, acutus, including delirium tremens.	269	24	274	61	43	27	36	734	9
2. Appendicitis, typhilitis, perityphilitis.	133	10	352	40	42	24	21	622	79
3. Chondritis, acuta.	649	61	915	114	600	33	17	2,289	159
4. Cholera Asiatica.								1	
5. Cholera nostras.								33	
6. Diphtheria.	3	1	15	12	1		1	1	
7. Dysentery.	14	10	218	10	5		1	265	194
8. Erysipelas.	9	3	28		8		3	44	2
9. Febris intermittens (malaria).	85	4	447	15	108	8	1	666	74
10. Febris recurrens.									
11. Fractura ossium.									
12. Gonorrhoea.	663	64	1,833	261	463	49	38	3,371	263
13. Hemiplegia.	80	13	141	31	45	8	9	237	53
14. Infusura.	832	67	1,033	271	180	134	26	2,643	20
15. Insolatio (Hitzschlag coup de chaleur).	2		14					16	
16. Loxostoma articuli.	331	60	845	161	195	44	10	1,836	168
17. Meningitis, cerebrospinalis, epiduralis.	2		3		11			18	
18. Morbilli.	100	12	322	32	779	1	1	1,247	8
19. Parotitis epidemica.	50	6	62	15	61	3	6	202	13
20. Pneumonia.	42	5	119	12	13	4	6	201	80
21. Pneumonia crouposa sive lobaris.	36	4	80	8	34		2	164	20
22. Rheumatismus articuli.	122	10	222	27	29	10	4	424	61
23. Scarlatina.	1		13	4	18		1	36	4
24. Scorbutus.	253	23	599	90	141	16	43	1,135	174
25. Syphilis.								11	
26. Trachoma.	32	8	101	19	18	9	16	203	12
27. Tuberculosis pulmonum.	4	2	8	2	3		1	20	4
28. Tuberculosis peritonum organorum.	2		9	1	3		1	16	7
29. Typhus abdominalis.									
30. Typhus exanthematicus.									
31. Ulcus molle.	153	11	360	27	60	4	2	1,107	102
32. Varicella.									
33. Morbi auris.	72	10	229	33	73	9	9	435	63
34. Morbi cordis.	26	6	53	16	19	4	4	132	10
35. Morbi cutis.	427	25	643	104	197	24	17	1,412	121
36. Morbi mentis.	48	7	96	25	41	6	14	237	9
37. Morbi oculi.	166	15	336	69	60	17	13	676	96
38. Morbi systemat urin, et sexuali (excluding venere et syphilis).	153	22	326	58	98	21	21	729	78

ADMISSIONS PER 1000 OF MEAN STRENGTH, PROPORTIONATE NUMBERS.

Diseases.	Eastern Department.	Central Department.	Southern Department.	Western Department.	Recruit depots.	Independent stations.	General hospitals.	Total.	Troops in Mexico.
1. Alcoholismus, acutus, including delirium tremens.	10.96	14.44	8.39	10.15	7.77	12.30	65.21	11.39	1.08
2. Appendicitis, typhilitis, perityphlitis.	8.39	6.02	10.78	6.66	7.50	10.93	38.04	9.65	9.47
3. Bronchitis, acuta.	34.65	35.70	28.01	18.97	108.45	15.03	30.80	35.50	19.06
4. Cholera Asiatica.									
5. Cholera nostras.	19	60	46	2.00	18		1.81	.02	
6. Diphtheria.	.88	6.02	6.67	1.66	.90	.51	14.49	4.11	23.25
7. Dysentery.	5.57	1.81	.86		.64		1.81	.68	.24
8. Erysipelas.	5.36	2.41	13.68	2.50	19.16	3.64	1.81	10.33	8.87
9. Febris intermittens (malaria).									
10. Febris recurrens.									
11. Fractura ossium.									
12. Gonorrhoea.	41.84	38.51	56.11	43.43	83.69	22.31	68.84	52.29	31.52
13. Hernia.	5.05	7.82	4.23	5.16	8.13	3.64	10.30	5.07	6.35
14. Influenza.	52.51	40.31	31.63	45.10	32.53	61.02	47.10	39.45	2.40
15. Insolutio (Hitzschlag coup de chaleur).									
16. Luxationes articulorum.	33.51	30.08	26.87	26.79	35.24	20.04	18.12	28.48	20.14
17. Meningitis, cerebrospinalis, epidemica.	13		.09		1.99	.46	1.81	.28	
18. Morbilli.	6.31	7.22	9.86	5.33	140.79	1.37	1.81	19.34	.96
19. Parotitis epidemica.	3.16	3.61	1.90	2.50	11.03	1.82	9.06	3.13	1.56
20. Pleuritis.	2.65	3.01	3.64	2.00	2.35	1.82	10.87	3.12	3.60
21. Pneumonia crouposa sive lobaris.	2.27	2.41	2.45	1.33	6.14	4.55	3.62	2.54	2.40
22. Rheumatismus articulorum.	7.70	6.02	6.80	4.49	5.24		7.24	6.53	7.31
23. Scarlatina.	.06		.37	.67	3.25		1.81	.56	.48
24. Scorbutus.									
25. Syphilis.	15.97	13.84	17.42	14.98	25.48	7.29	77.90	17.61	20.86
26. Trachoma.			.84					.17	
27. Tuberculosis pulmonum.	2.02	4.80	3.09	3.16	3.25	4.10	28.99	3.15	1.44
28. Tuberculosis ceterorum organorum.	.25	1.20	.24	.33	.54		1.81	.31	.48
29. Typhus abdominalis.	.13		.28	.17			1.81	.26	.84
30. Typhus exanthematicus.									
31. Ulcus molle.	9.66	6.62	26.02	4.49	10.84	1.82	3.62	17.17	12.22
32. Varicella.									12
33. Morbi auri.	4.54	6.02	7.01	5.49	13.19	4.10	16.30	6.75	7.55
34. Morbi cordis.	3.61	1.63	1.63	2.66	3.43	1.82	14.49	2.05	1.20
35. Morbi cutis.	26.95	15.04	19.84	17.31	35.60	10.93	30.80	22.37	14.50
36. Morbi mentis.	3.03	4.21	2.94	4.16	7.41	2.73	26.36	3.68	1.08
37. Morbi oculi.	10.48	9.08	10.29	11.48	10.84	7.74	22.55	10.49	11.39
38. Morbissystemat urin, et sexual (excluding venere et syphilis)...	11.55	13.24	9.96	9.67	17.71	9.56	33.04	11.31	8.75

TABLE No. 80.—Comparative figures, enlisted American troops, Army, 1912-1916.

ABSOLUTE NUMBERS.

Army.	Mean strength.	Admissions to sick report.		Discharges on certificate of disability.		Deaths.		Total losses.		Total days.				Constantly non-effective.			
		From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	Total.	In hospital.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	Total.	In hospital.
1916.....	99,186	74,150	49,430	1,639	1,258	517	243	2,156	1,501	1,015,940	894,914	635,605	.....	2,715.52	1,736.63	1,736.63	.....
1915.....	93,262	69,442	45,210	1,351	1,110	436	224	1,787	1,344	890,823	763,953	555,810	433,402	2,413.31	1,622.77	1,622.77	1,351.79
1914.....	87,228	58,079	35,502	1,145	871	392	195	1,537	1,116	790,883	684,082	467,890	428,246	2,095.57	1,261.89	1,261.89	1,173.28
1913.....	80,796	54,257	33,459	1,082	865	397	202	1,479	1,067	717,149	659,098	447,081	420,217	1,964.79	1,224.82	1,224.82	1,151.28
1912.....	78,267	64,487	39,953	1,069	844	381	169	1,450	1,013	862,221	790,213	494,236	459,521	2,555.80	1,350.37	1,350.37	1,255.53

PROPORTIONATE NUMBERS.

Army.		Mean strength.	Ratio per 1,000 of mean strength.										Average number of days lost.					
			Admissions to sick report.		Discharges on certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.				From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.	
			From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	Total.	In hospital.	Total.	In hospital.	For each case.	For each soldier.	For each case.	For each soldier.		
1916.....	99,186	747.59	498.37	16.52	12.68	5.21	2.45	21.73	15.13	27.98	24.65	1,738.63	.....	10.24	13.70	6.41	12.86	
1915.....	93,262	744.59	484.76	14.26	11.72	4.60	2.47	18.86	14.19	26.88	22.44	16.33	.....	9.44	12.68	5.96	12.29	
1914.....	87,228	665.83	407.00	12.99	10.45	4.45	2.21	17.44	12.66	24.02	21.49	14.70	13.45	8.77	13.17	5.26	13.18	
1913.....	80,766	671.78	414.27	13.24	10.59	4.86	2.47	18.10	13.06	24.33	22.38	15.17	14.26	8.88	13.22	5.53	13.36	
1912.....	78,267	823.94	510.46	13.43	10.60	4.79	2.12	18.22	12.72	30.10	27.53	17.25	16.04	11.02	13.37	6.31	12.37	

TABLE No. 81.—*Ratios per 1,000 of mean strength for "total admissions" and for "case admissions" for enlisted American troops in the Army (as a whole), in the United States (continental), excluding Alaska, and in the Philippine Islands, for the years 1904 to 1911, for disease, external causes, and all causes.*

Year.	Enlisted American troops.	Army.		United States (continental), excluding Alaska.		Philippine Islands.	
		Total admissions.	Case admissions.	Total admissions.	Case admissions.	Total admissions.	Case admissions.
1904	Diseases.....	1,114	1,002	1,049	961	1,473	1,298
	External causes.....	241	228	267	242	215	204
	All causes.....	1,355	1,230	1,306	1,193	1,688	1,497
1905	Diseases.....	1,058	975	998	921	1,387	1,260
	External causes.....	238	226	252	239	213	207
	All causes.....	1,296	1,201	1,250	1,160	1,600	1,467
1906	Diseases.....	1,053	987	944	879	1,494	1,409
	External causes.....	224	216	236	226	206	202
	All causes.....	1,277	1,203	1,180	1,105	1,700	1,611
1907	Diseases.....	1,005	926	956	885	1,260	1,153
	External causes.....	213	206	216	208	223	216
	All causes.....	1,218	1,132	1,172	1,093	1,483	1,369
1908	Diseases.....	963	891	922	860	1,208	1,097
	External causes.....	225	217	227	219	232	222
	All causes.....	1,188	1,108	1,149	1,079	1,440	1,319
1909	Diseases.....	866	791	822	750	1,156	1,062
	External causes.....	197	190	202	196	192	185
	All causes.....	1,063	981	1,024	945	1,348	1,247
1910	Diseases.....	766	707	715	662	1,048	956
	External causes.....	184	178	184	178	196	188
	All causes.....	950	885	899	840	1,243	1,144
1911	Diseases.....	770	718	726	690	1,028	947
	External causes.....	166	161	162	157	190	185
	All causes.....	936	879	888	837	1,218	1,132

INTERNATIONAL MILITARY MEDICAL STATISTICS FOR THE YEAR 1916.

These tables are those agreed upon at the International Commission for the Unification of the Medical Statistics of Armies, held at Budapest in 1894; at Madrid in 1903; and modified by the last meeting, held at Berlin in 1907. They are calculated for the United States Army proper (white and colored), and include enlisted men only. Dispositions include cases remaining from last year. Deaths include suicides and accidents. Days lost include those lost this year by cases remaining from last year.

Table I shows in absolute numbers, by divisions, the mean strength of the command, the admissions to quarters, to hospital, and total admissions, the disposition of the sick, total, and the number returned to duty, died, and otherwise disposed of, and the total number of days' sickness.

Table II gives the same data in ratios per 1,000 and also shows the days lost per soldier and per admission.

Table III shows, by arms of service, the mean strength, the total admissions, and those admitted to hospital only, the total dispositions, and the number of those returned to duty and the number that died.

Table IV is omitted in the series.

Table V shows for each of the larger garrisons the mean strength, admissions to hospital, total admissions, and the deaths.

Table VI shows for each of the 38 diseases or disease groups agreed upon by the international commission the number remaining under treatment at the commencement and close of the current year, the admissions and dispositions for the year, the total sick days, and the average number of days per case.

Table VII shows the admissions by arms of service for the diseases and disease groups referred to in Table VI.

Table VIII is omitted in the series.

Table IX shows deaths by rank, by length of service, and by age.

Table X shows the same data as Table IX for discharges for physical disability.

INTERNATIONAL TABLE I.—*Movement of sick by Army corps (departments).*

ABSOLUTE NUMBERS (ENLISTED MEN)).

	Admitted sick.				Sick disposed of.				Total days sick.
	Mean strength.	Total.	To hospital.	To quarters.	Returned to duty recovered.	Died.	Otherwise disposed of.	Total.	
United States (excluding Alaska):									
Eastern Department.....	14,959	10,254	8,989	1,315	9,750	47	163	9,960	102,043
Central Department.....	1,515	1,018	902	116	982	13	33	1,028	13,100
Southern Department (excluding troops on Mexican border).....	5,224	4,693	4,460	233	7,339	62	409	7,810	158,155
Western Department.....	5,743	3,019	2,363	656	2,179	13	34	2,226	22,776
Mexican border.....	26,085	19,097	10,093	9,004	15,094	110	265	15,469	157,016
Independent stations.....	1,989	977	669	308	872	3	17	892	8,432
Recruit depots.....	5,411	6,177	5,947	230	5,490	28	142	5,660	57,590
General hospitals.....	504	539	514	25	1,925	39	476	2,440	170,335
Total.....	61,410	45,774	33,887	11,887	43,631	315	1,539	45,485	689,437
Alaska ¹	745	257	229	28	234	5	17	256	2,516
Mexico.....	8,049	6,521	3,761	2,760	5,107	61	180	5,348	46,020
Canal Zone, Panama ¹	6,783	5,763	3,974	1,789	5,499	28	149	5,676	69,881
Hawaiian Department.....	8,476	4,361	3,985	376	4,150	41	175	4,366	59,617
China ¹	1,321	1,176	1,031	145	1,126	14	34	1,174	15,140
Philippine Department.....	11,580	9,711	9,223	488	9,046	52	224	9,322	118,177
Army transports.....	822	587	563	24	371	.....	4	375	15,052
Army.....	99,186	74,150	56,653	17,497	69,164	516	2,322	72,002	1,015,840

¹Separated from the department to which they belong for purposes of comparison.

INTERNATIONAL TABLE II.—*Movement of sick, by Army corps (departments).*

PROPORTIONATE NUMBERS (ENLISTED MEN).

	In 1,000 of mean strength.			In 1,000 disposed of.			Days lost	
	Total admissions.	Admissions to hospital.	Deaths.	Returned to duty (recovered).	Died.	Otherwise disposed of.	Per soldier.	Per admission.
United States (excluding Alaska):								
Eastern Department.....	685.47	597.57	3.14	978.92	4.72	16.37	6.82	9.95
Central Department.....	671.95	595.39	8.58	955.25	12.65	32.10	8.65	12.87
Southern Department (excluding troops on Mexican border).....	898.35	853.75	11.87	939.69	7.94	52.37	30.27	33.70
Western Department.....	528.68	411.46	2.26	978.89	5.84	15.27	3.97	7.54
Mexican border.....	732.67	387.22	4.22	975.78	7.11	17.13	6.02	8.22
Independent stations.....	491.20	336.35	1.51	977.58	3.36	19.06	4.24	8.63
Recruit depots.....	1,141.56	1,099.06	5.17	969.96	4.95	25.09	10.64	9.32
General hospitals.....	1,069.44	.....	.....	661.97	27.17	310.87	.....	.....
Total.....	745.38	551.81	5.13	959.24	6.93	33.84	11.23	15.06
Alaska.....	344.97	307.38	6.71	914.06	19.53	66.41	3.38	9.79
Mexico.....	810.16	467.26	7.58	954.94	11.41	33.66	6.72	7.06
Canal Zone, Panama.....	849.62	585.88	4.13	968.82	4.93	26.25	10.30	12.13
Hawaiian Department.....	514.51	470.15	4.84	950.53	9.39	40.08	7.03	13.67
China.....	890.23	780.48	10.60	959.11	11.93	28.96	11.46	12.87
Philippine Department.....	838.60	796.46	4.49	970.39	5.58	24.03	10.21	12.17
Army transports.....	714.11	684.91	.....	989.33	.....	10.67	18.31	25.64
Army.....	747.50	571.18	5.20	960.58	7.17	32.25	10.24	13.70

INTERNATIONAL TABLE III.—*Movement of sick, by arms of service—Army—Enlisted men, American troops.*

Arms of service.	Mean strength	Absolute numbers.					Proportionate numbers.				
		Sick admissions.		Sick disposed of.			Per 1,000 of mean strength.			Per 1,000 of sick disposed of.	
		Total.	To hospital.	Total.	Fit for duty (recovered).	Deaths.	Total Sick admissions.	Admissions to hospital.	Deaths.	Fit for duty (recovered).	Deaths.
Infantry.....	35,458	26,272	17,892	25,419	24,354	173	740.93	504.60	4.88	958.10	6.81
Cavalry.....	16,070	13,993	10,314	13,622	13,125	120	870.75	641.82	7.47	963.51	8.81
Coast Artillery.....	18,630	12,432	10,997	2,328	1,877	76	667.31	590.29	4.08	806.27	32.65
Field Artillery.....	6,094	5,537	3,951	5,332	5,171	24	908.60	648.34	3.94	969.80	4.50
Engineers.....	1,939	1,582	1,101	1,564	1,478	16	815.88	567.82	8.25	945.01	10.23
Ordnance.....	744	396	203	387	374	4	532.26	272.85	5.38	966.41	10.34
Signal Corps.....	1,590	892	598	869	832	5	561.01	376.10	3.14	957.42	5.75
Hospital Corps.....	5,036	3,706	3,169	3,539	3,356	26	735.90	629.27	5.16	948.29	7.35
Others.....	13,625	9,340	8,428	8,942	8,597	72	685.50	618.57	5.28	961.42	8.06
Total.....	99,180	74,150	56,653	72,002	69,164	516	747.59	571.18	5.20	960.58	7.17

INTERNATIONAL TABLE V.—*Movement of sick in the larger garrisons, officers and enlisted men, year 1916.*

Garrison.	Mean strength.	Total admissions.		Admissions to hospital.		Deaths.	
		Absolute numbers.	Per 1,000 of mean strength.	Absolute numbers.	Per 1,000 of mean strength.	Absolute numbers.	Per 1,000 of mean strength.
Fort Sam Houston, Tex.....	2,135	2,393	1,120.84	2,300	1,077.29	15	7.08
Jefferson Barracks, Mo.....	1,481	1,788	1,207.29	1,770	1,195.14	4	2.70
Fort Bliss, Tex.....	1,341	1,333	994.03	1,204	897.84	37	27.59
Columbus Barracks, Ohio.....	1,331	1,843	1,384.67	1,795	1,348.61	12	9.02
Fort Slocum, N. Y.....	1,162	1,021	878.66	1,011	870.05	2	1.72
Fort Monroe, Va.....	1,156	634	548.45	559	483.56	1	.87
Fort McDowell, Cal.....	950	799	841.05	673	708.42	4	4.21
Fort Sill, Okla.....	925	469	507.03	420	454.06	3	3.24
West Point, N. Y.....	840	397	353.57	240	285.72	2	2.38
Fort Hancock, N. J.....	670	495	738.81	470	701.49	2	2.99
Fort H. G. Wright, N. Y.....	644	485	753.10	434	673.91	.....	.....
Vancouver Barracks, Wash.....	640	300	468.75	279	435.94	3	4.69
Fort Worden, Wash.....	639	300	469.48	287	449.14	2	3.13
Fort Ethan Allen, Vt.....	630	581	922.22	522	828.57	.....	.....
Fort Logan, Colo.....	609	773	1,269.29	704	1,155.99	7	11.49
Fort Terry, N. Y.....	602	257	426.91	197	327.24	.....	.....
Presidio of San Francisco, Cal.....	542	328	605.17	9	16.61	1	1.85
Fort Adams, R. I.....	516	390	755.81	192	372.09	.....	.....
Fort Myer, Va.....	513	459	894.74	410	799.22	.....	.....
Fort Hamilton, N. Y.....	505	249	493.07	151	299.01	1	1.98
Fort Totten, N. Y.....	495	286	577.78	238	480.81	3	6.06
Fort Leavenworth, Kans.....	487	300	616.02	248	509.24	7	14.37
Plattsburg Barracks, N. Y.....	473	356	752.64	277	585.63	2	4.23
Schofield Barracks, Hawaii.....	5,707	3,095	542.32	2,880	504.64	26	4.56
Fort Shafter, Hawaii.....	1,687	693	410.79	600	355.66	8	4.74
Fort Kamehameha, Hawaii.....	559	191	341.68	139	248.66	2	3.58
Fort William H. Seward, Alaska.....	223	93	417.04	91	408.07	1	4.48
Fort Gibbon, Alaska.....	210	102	488.71	83	395.24	3	14.29
Fort Davis, Alaska.....	104	15	144.23	9	86.54	1	9.62
Fort Mills, P. I.....	4,486	2,549	568.21	2,492	555.51	18	4.01
Fort William McKinley, P. I.....	3,037	2,602	856.77	2,482	817.25	17	5.60
Camp Stotsenburg, P. I.....	2,050	2,322	1,133.17	2,245	1,096.12	9	4.39
Augur Barracks, P. I.....	935	580	620.32	551	589.31	6	6.42
Ludlow Barracks, P. I.....	932	400	429.18	379	406.65	1	1.07
Camp Keithley, P. I.....	862	356	412.99	339	393.27	2	2.32
Camp McGrath, P. I.....	823	579	703.52	555	674.36	15	18.80
Cuartel de Espana, P. I.....	791	673	850.82	479	606.56	1	1.26
Regan Barracks, P. I.....	573	530	924.96	386	673.64	4	6.98
Camp John Hay, P. I.....	565	367	649.56	357	631.86	1	1.77

INTERNATIONAL TABLE VI.—*Movement of sick according to most important diseases, Army (American troops), enlisted men, 1916.*

	Absolute numbers.						Proportionate numbers.				Average days of confinement.			
	Re- main- ing at close, 1915.	Ad- mitted, 1916.	Total re- main- ing and ad- mitted.	Disposed of, 1916.			Re- main- ing at close of 1916.	Total days sick of 1916.	Per 1,000 of mean strength.					
				Fit for duty.	Died.	Other- wise.			Admis- sions.	Deaths.		Fit for duty.	Died.	Other- wise.
1. <i>Alcoholismus acutus, including delirium tremens.</i>	13	1,084	1,097	1,080	2	11	1,083	4,314	10.93	0.02	988.11	1.83	10.06	3.93
2. <i>Appendicitis, typhilitis, and perityphilitis.</i>	37	983	1,020	907	16	27	960	2,570	9.91	.16	964.74	16.84	28.42	2.52
3. <i>Bronchitis acuta.</i>	20	3,235	3,264	3,098	5	19	3,117	23,586	32.61	.....	983.90	.....	6.10	7.23
4. <i>Cholera Asiatica.</i>	5	.....	.....	.....	.....	.....	.....	173	.06	.....	1,000.00	.....	.....	34.60
5. <i>Cholera nostras.</i>	9	37	46	43	.....	.....	43	923	.37	.....	976.74	.....	23.26	20.07
6. <i>Diphtheria and croup.</i>	15	621	636	563	10	21	594	16,366	6.26	.10	947.81	16.83	35.36	26.73
7. <i>Dysentery.</i>	1	51	52	42	1	1	44	870	.61	.01	954.55	22.73	22.73	16.73
8. <i>Erysipelas.</i>	15	2,253	2,268	2,214	1	17	2,232	21,423	22.71	.01	991.94	.45	7.62	9.45
9. <i>Febris intermittens (malaria).</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10. <i>Febris recurrens.</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11. <i>Fractura ossium.</i>	136	1,320	1,456	1,226	33	79	1,338	51,596	13.31	.33	916.29	24.66	58.04	35.44
12. <i>Gonorrhoea.</i>	225	5,795	6,020	4,753	1	146	4,900	227,425	58.42	.01	970.00	20.20	20.80	16.18
13. <i>Hernia.</i>	26	486	512	416	4	52	472	17,676	4.90	.04	881.36	8.47	110.17	24.52
14. <i>Influenza.</i>	127	2,880	3,007	2,898	1	20	2,919	15,619	29.04	.01	992.81	34	6.85	5.19
15. <i>Insolatio (Hitzschlag, coup de chaleur).</i>	46	2,772	2,818	2,747	1	1	20	134	18	.01	900.00	50.00	50.00	7.44
16. <i>Luxationes articulorum.</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17. <i>Meningitis cerebrospinalis epidemica.</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18. <i>Morbilli.</i>	16	1,314	1,330	1,123	9	2	1,114	7,598	27.95	.09	922.77	642.86	142.86	7.63
19. <i>Parotitis epidemica.</i>	1	314	330	272	3	25	3	20,543	13.25	.09	971.60	7.52	20.89	15.44
20. <i>Pleuritis.</i>	16	336	352	307	3	3	304	2,902	2.91	.09	980.09	10.91	16.73	23.26
21. <i>Pneumonia crouposa sive lobaris.</i>	24	205	229	134	28	11	173	8,164	3.39	.28	944.24	161.85	64.02	2.52
22. <i>Rheumatismus articulorum.</i>	25	565	590	508	1	29	538	13,360	5.70	.01	944.24	1.86	53.90	22.64
23. <i>Scarlatina.</i>	1	48	49	39	3	2	44	1,559	.48	.03	886.36	68.18	45.46	31.82
24. <i>Scorbutus.</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25. <i>Syphilis.</i>	139	2,119	2,258	1,841	12	283	2,135	64,287	21.37	.12	962.30	5.62	132.08	28.47
26. <i>Trachoma.</i>	1	13	14	9	.....	4	13	297	1.13	.....	692.31	307.69	307.69	28.47
27. <i>Tuberculosis pulmonum.</i>	181	311	492	56	34	224	314	61,664	3.14	.34	178.34	108.28	713.38	126.33
28. <i>Tuberculosis ceterorum organorum.</i>	10	82	42	16	4	15	35	3,249	.32	.04	457.14	114.29	428.57	77.36
29. <i>Typhus abdominalis.</i>	4	20	24	20	1	1	22	1,294	.20	.01	906.09	45.45	45.45	53.92
30. <i>Typhus exanthematicus.</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31. <i>Ulcus molle.</i>	66	2,337	2,403	1,801	.....	576	2,377	42,415	23.56	.....	757.68	242.32	242.32	17.65
32. <i>Varicella.</i>.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33. <i>Morbi auris.</i>	11	683	694	615	.....	30	645	10	6.09	.01	1,000.00	.....	46.51	10.00
34. <i>Morbi cordis.</i>	10	184	194	106	20	60	186	7,886	1.86	.20	590.90	107.53	322.68	40.39

25. Morbi cutis ¹	42	2,452	2,464	2,425	.....	19	2,444	54	26,257	24.72	.....	992.23	.....	7.77	10.53
26. Morbi mentis.....	79	389	443	59	4	283	346	103	30,174	3.96	.....	170.53	11.56	317.92	67.35
27. Morbi oculi.....	22	043	1,065	983	.....	44	1,026	45	13,780	10.52	.....	957.12	.....	42.88	12.92
28. Morbi systemat. urin. et sexual. (excluding venere et syphilis).....	43	1,165	1,208	1,053	19	69	1,140	72	21,415	11.75	.....	922.81	16.67	60.53	17.73

¹Includes tuberculosis of the larynx.²Includes pericarditis and endocarditis.³Diseases of the skin proper only.

INTERNATIONAL TABLE VII.—Most important diseases, by arms of service (enlisted men), American troops, 1916.

Diseases of the International nosological table.	Absolute numbers—Admissions by arms of service.										Proportionate numbers—Admissions per 1,000 of mean strength.									
	Infantry.	Cavalry.	Coast Artillery.	Field Artillery.	Engineers.	Ordnance.	Signal Corps.	Hospital Corps.	Others.	Infantry.	Cavalry.	Coast Artillery.	Field Artillery.	Engineers.	Ordnance.	Signal Corps.	Hospital Corps.	Others.	Infantry.	Cavalry.
1. Alcoholism acutus, including delirium tremens.....	430	95	275	63	24	12	22	145	139	12.13	5.91	14.76	10.34	12.38	16.13	13.84	28.79	10.20		
2. A. urinum tremens.....	330	146	166	67	26	6	12	103	107	9.31	10.33	8.91	10.99	13.41	8.06	7.55	20.45	7.95		
3. Bronchitis, typhilitis and perityphilitis.....	933	471	604	207	52	10	43	209	736	25.47	28.31	32.42	33.97	28.52	13.44	27.04	41.50	54.02		
4. Cholera Asiatica.....	3								1	.06							.20	.07		
5. Cholera infantum.....	13	6	9	1				2	5	.37	.37	.45	.16	.72	.63	.63	.40	.37		
6. Diphtheria et croup.....	233	161	27	44	14	2	19	51	2	6.71	10.02	1.45	7.23	7.22	2.69	11.95	10.13	28		
7. Dysentery.....	23	6	5	5				5	159	12.38	15.68	14.26	39.22	36.10	4.03	11.32	11.91	11.67		
8. Erysipelas.....	439	262	266	239	70	3	13	60												
9. Febris intermittens (malaria).....																				
10. Febris recurrens.....	413	339	189	132	30	5	15	42	155	11.63	21.10	10.14	21.66	15.47	6.72	9.43	8.34	11.38		
11. Fractura costum.....	2,310	1,020	951	404	141	3	50	282	634	65.15	63.47	51.06	66.30	72.72	4.03	31.45	56.00	46.33		
12. Herpes.....	160	82	89	28	15	3	9	35	63	3.10	5.10	4.77	4.10	7.74	4.03	5.66	6.95	4.99		
13. Influenza.....	572	439	761	128	57	31	22	226	344	24.59	27.32	40.85	21.00	29.40	41.67	13.84	44.88	25.25		
14. Insolutio (Hitzschlag, coup de chaleur).....	5	4	9																	
15. Luxationes articuli.....	961	592	4	204	42	14	24	56	293	27.10	36.84	31.45	33.43	21.66	15.52	15.09	11.12	21.50		
16. Meningitis cerebrospinalis epidemica.....	2	3	3					1	10	0.06	3.61	7.19	6.98	3.61				73		
17. Morbilli.....	213	44	134	47	7		5	54	815	6.01	2.74	7.19	6.98	3.61		3.14	10.72	59.82		
18. Parotitis epidemica.....	196	19	63	7	3		4	24	66	2.76	1.18	3.65	1.15	1.55		2.52	4.77	3.45		
19. Pleuritis.....	147	59	45	26	9	2	5	22	21	4.15	3.67	2.42	4.27	1.64	2.69	3.14	4.37	1.54		
20. Pneumonia crupiosa sive lobaris.....	60	37	26	11	2	1	11	11	47	1.92	2.30	1.40	1.81	1.03	1.84	5.63	2.18	4.84		
21. Pneumonia crupiosa sive lobaris.....	210	108	120	24	9	4	3	27	60	5.92	6.72	6.44	3.94	4.64	5.38	1.89	5.36	4.40		
22. Rheumatismus articularum.....	11	5	6	2				6	17	.31	.31	.32	.33			.63	1.19	1.26		
23. Scarlatina.....																				
24. Scorbutus.....	929	330	333	117	64	9	33	82	232	26.20	20.54	17.87	19.20	27.55	12.10	20.75	16.26	17.08		
25. Syphilis.....	10	1	1						42	3.36	2.24	2.68	2.63	3.09	1.34	3.14	7.15	3.08		
26. Trachoma.....	119	36	50	16	6	1	5	36	4	.08	.06	.16	.16					.44		
27. Tuberculosis pulmonum.....	14	1	6	1				1	4	.08	.06	.16	.16					.20		
28. Tuberculosis testiculi, organorum.....	3	8	3	1					4											
29. Typhus abdominalis.....																				
30. Typhus exanthematicus.....																				
31. Ulcus molle.....	1,247	337	269	182	49	8	14	88	123	35.17	20.97	14.44	29.87	25.37	10.75	58.05	17.47	9.76		
32. Varicella.....																				
33. Morbi auris.....	260	126	115	51	11	3	3	33	92	7.05	7.84	6.17	8.37	5.67	2.69	1.99	6.55	6.75		
34. Morbi cordis.....	42	35	32	9	3	3	3	11	27	1.18	2.18	1.72	1.48	1.58	4.03	2.52	2.18	1.98		
35. Morbi cutis.....	925	404	552	176	44	6	16	68	261	26.09	25.14	29.63	28.88	22.69	8.06	10.06	13.50	19.16		
36. Morbi mentis.....	116	64	67	21	10	1	4	32	54	3.27	3.98	3.60	3.47	5.16	1.34	2.52	6.35	3.98		
37. Morbi oculi.....	373	197	218	30	25	10	17	55	109	10.53	12.26	11.70	6.40	12.89	13.44	10.69	10.92	8.00		
38. Morbi systemati, urini et sexuali (exclud- ing venere et syphilis).....	411	218	179	73	26	7	17	73	161	11.59	13.57	9.61	11.96	13.41	9.41	10.69	14.50	11.82		

1 Malarial fever, intermittent only.

2 Includes tuberculosis of the larynx.

3 Includes pericarditis and endocarditis.

4 Diseases of the skin proper only.

INTERNATIONAL TABLE IX.—Deaths by rank, by length of service, and by age, 1916.

Causes of death.	Total number of deaths (enlisted men).		Deaths by rank and length of service.					Deaths by age.				
	Absolute numbers.	Per 1,000 of mean strength.	Noncommissioned officers.	Soldiers in first year of service.	Soldiers in second year of service.	Soldiers in third year of service and over.	20 and under.	21 to 25.	26 to 30.	31 to 35.	36 to 40.	41 and over.
Deaths from sickness.....	274	2.59	78	50	30	116	23	67	44	22	20	21
Soldiers present with troops.....	181	1.71	45	39	19	78	18	50	25	15	14	14
Soldiers absent from troops.....	93	.88	33	11	11	38	4	17	19	7	6	7
Accidental deaths.....	199	1.88	39	30	49	81	18	81	32	21	4	4
Soldiers present with troops.....	169	1.60	34	25	43	67	16	71	24	16	4	4
Soldiers absent from troops.....	30	.28	5	5	6	14	2	10	8	5	.....	.....
Suicides.....	62	.59	17	7	13	25	2	21	11	6	5	.....
Soldiers present with troops.....	51	.48	14	5	11	21	1	19	10	4	3	.....
Soldiers absent from troops.....	11	.10	3	2	2	4	1	2	1	2	2	.....
Total.....	535	5.06	134	87	92	222	42	169	87	49	29	25

INTERNATIONAL TABLE X.—Discharges from the Army, for physical disability, temporary or permanent, by rank, length of service, and by age, 1916.

Causes of discharge.	Total discharged (enlisted men).		Rank and length of service.					Age.				
	Absolute numbers.	Per 1,000 of mean strength.	Noncommissioned officers.	Soldiers in first year of service.	Soldiers in second year of service.	Soldiers in third year of service and over.	20 and under.	21 to 25.	26 to 30.	31 to 35.	36 to 40.	41 and over.
Physical disability existent prior to enlistment.....	828	7.83	14	468	193	153	115	466	171	50	7	5
Physical disability incident to service.....	662	6.26	99	103	160	300	30	262	136	83	31	21
Physical disability not incident to service.....	199	1.88	16	44	37	102	10	88	45	20	16	4
Total.....	1,689	15.98	129	615	390	555	155	816	352	153	54	30

Very respectfully,

W. C. GORGAS,
Surgeon General.

The SECRETARY OF WAR.

REPORT OF THE CHIEF OF ORDNANCE.

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REPORT OF THE CHIEF OF ORDNANCE.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
October 15, 1917.

SIR: I have the honor to submit the following report on the principal operations of the Ordnance Department during the past year, together with certain remarks as to its interests and necessities.

PERSONNEL.

On July 1, 1916, the first increment of the total increase of 57 officers provided in the act approved June 3, 1916, became available, and the promotions and details authorized thereby were made, providing a total of 97 officers available at the outbreak of the war. The increase in commissioned strength estimated as being necessary for the proper conduct of the various functions devolved upon the Ordnance Department during the first year of the war represented an increase of approximately 2,700 per cent and made the problem of securing this personnel one of the most serious of the many which confronted the department at the outset of the war.

On October 1, 1917, the program for securing, instructing, and assigning to duty the additional officers was approximately 50 per cent completed, and suitable arrangements were made for securing the remainder required.

In the regular Ordnance Department the four remaining increments authorized by the act of June 3, 1916, were made in June, 1917, except that, due to extraordinary conditions as to promotion in the line of the Army, no additional first lieutenants were detailed in the Ordnance Department. As practically all first lieutenants serving in that grade at the outbreak of the war were promoted to the next higher grade, the effect was to leave the department without any members in the grade of first lieutenant, which represented a loss of 42 out of a total of 142 officers. This condition was, to a certain extent, offset by securing the detail of certain captains of the line for duty with the department in addition to the officers regularly detailed in the department in that grade, by calling to active duty retired officers of the Ordnance Department, and by calling into active service members of the Ordnance Officers' Reserve Corps.

FISCAL AFFAIRS.

The statement giving the receipts and expenditures of the Ordnance Department under general headings for the fiscal year of 1917 is herewith submitted in tabular form so as to show the data

under the various appropriations made for the service of this department, including those for experiments conducted under the direction of the Board of Ordnance and Fortification, and for the purchase of submarine mines, the control of which rests with the Chief of Coast Artillery.

The tables constituting the statement show that on July 1, 1916, there was in the Treasury and in the possession of disbursing officers the sum of \$12,437,547.57.

Statement of receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1917.

RECEIPTS.

Appropriations.	Balance in Treasury June 30, 1916.	Amount in Treasury not reported to credit of appropriations June 30, 1916.	Balance to credit of disbursing officers on June 30, 1916.	Appropriated, etc.	Received from transfers, etc., during fiscal year 1917.	Received from sales, loss, damage, etc., during fiscal year 1917.	Due to other appropriations.	Total.
Ordnance service:								
1915.....	\$398.10	\$144.21	\$2.84		\$13.59	\$22.01		\$401.04
1916.....	23,226.38		41,579.84	\$503,000.00	57.69	367.15	\$165.02	64,853.03
1917 and 1918, act June 15, 1917.....				2,650,000.00				503,812.86
Ordnance stores, ammunition:								2,650,000.00
1914 and 1915.....	142.94				4.16			147.10
1915 and 1916.....	5,634.95		9,322.36	210,000.00	4.50			14,963.81
1916 and 1917.....	42,737.79		6,128.01	10,000,000.00		437.66		259,344.46
1917 and 1918.....				131,046,000.00			325.00	10,000,000.00
1917-1919, act June 15, 1917.....								131,046,325.00
Ordnance stores and supplies:								
1914 and 1915.....	685.54		7.90					693.44
1915 and 1916.....	1,164.26		54,438.11					55,604.37
1916 and 1917.....	770,146.58		101,414.49	10,500,000.00	1.25	303.73		871,864.05
1917 and 1918.....				10,500,000.00				10,500,000.00
1917-1919, act June 15, 1917.....				106,560,000.00				106,560,000.00
Small arms and target practice:								
1913 and 1914.....	723.80		84.47					84.47
1914 and 1915.....	48,835.22		21,380.00					22,103.80
1915 and 1916.....	343,078.97		8,304.73		1.61			27,251.66
1916 and 1917.....			52,538.20	3,000,000.00	13.80			895,618.97
1917 and 1918.....				17,560,000.00				3,000,000.00
1917-1919, act June 15, 1917.....								17,560,000.00
Repairs of armaments:								
1915.....	648.07		399.14					399.14
1916.....	54,735.12	52.00	21,312.40					21,960.47
1917.....			55,403.66	350,000.00				110,190.78
1917 and 1918, act June 15, 1917.....				400,000.00				350,000.00
Replacing ordnance and ordnance stores:								
1911 and 1912.....	77.91		10.05					47.59
1914 and 1915.....	219,728.04		101,363.76					27,916
1915 and 1916.....	368,730.89	4,862.18	47,088.79					321,258.31
1916 and 1917.....								499,577.70
1917 and 1918.....								1,203,621.93
						47.59		
						132.13		
						5,861.49		
						73,077.33		
						1,129,361.69		

Statement of receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1917—Continued.

RECEIPTS—Continued.

Appropriations.	Balance in Treasury June 30, 1916.	Amount in Treasury reported to credit of appropriations June 30, 1916.	Balance to credit of disbursing officers on June 30, 1916.	Appropriated, etc.	Received from transfers, etc., during fiscal year 1917.	Received from sales, loss, damage, etc., during fiscal year 1917.	Due to other appropriations.	Total.
Manufacture of arms:								
1912 and 1913.....	\$358.56					\$34.58		\$34.58
1914 and 1915.....	892.56		\$10,269.49					358.56
1915 and 1916.....	134,920.79		49,533.16		\$26.48			11,129.34
1916 and 1917.....				\$5,000,000.00		6.50		184,783.83
1917 and 1918.....				55,349,000.00		75.70		6,000,075.70
1917-1919, act June 15, 1917.....	39,236.88		3,075.00					55,349,000.00
Automatic rifles.								41,311.88
1911 and 1912.....				190,000.00		7.62		7.62
1916.....								190,000.00
1916 and 1917.....	120,848.08		3,022.94					123,871.02
1917 and 1918.....				6,000,000.00				6,000,000.00
1917-1919.....				5,000,000.00				5,000,000.00
1917 and 1918, act June 15, 1917.....				65,900,000.00				65,900,000.00
Automatic rifles for National Guard:								
1917 and 1918.....				6,000,000.00				6,000,000.00
1917-1919.....				2,500,000.00				2,500,000.00
Exchanging or issuing new pistols, ammunition, etc., Organized Militia.	44.77							44.77
Field artillery for Organized Militia.	198,685.43		553.45					199,238.88
1913-1915.....	8,077.81		42,228.31					50,306.12
1914-1916.....	22,449.28		82,063.77					104,513.05
1915-1917.....	1,747,164.80		95,214.33		16.51			1,842,395.64
Ammunition for field artillery for Organized Militia:								
1913-1915.....	120.96							120.96
1914-1916.....	816.97		85,767.70		28.00	24.67		84,637.34
1915-1917.....	1,377,454.98		157,571.36			36.14		1,534,962.48
Field artillery for National Guard, 1917 and 1918.				20,000,000.00				20,000,000.00
Ammunition for field artillery for National Guard, 1917 and 1918.				20,000,000.00				20,000,000.00
Equipment of Coast Artillery armories, Organized Militia.	42,822.12		1,384.51			318.48		44,525.11
Armored motor cars:								
1916.....	3,508.73		2,201.15					5,709.87
1917.....				600,000.00				600,000.00
1917 and 1918, act June 15, 1917.....				3,900,000.00				3,900,000.00

[illegible]

Statement of receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1917—Continued.

RECEIPTS—Continued.

Appropriations.	Balance in Treasury June 30, 1916.	Amount in Treasury not reported to credit of appropriations June 30, 1916.	Balance to credit of disbursements on June 30, 1916.	Appropriated, etc.	Received from transfers, etc., during fiscal year 1917.	Received from sales, loss, damage, etc., during fiscal year 1917.	Due to other appropriations.	Total.
Proving Ground, Sandy Hook, N. J. 1917.	\$16,554.67		\$8,610.64	\$255,000.00	\$11,866.04	\$1,966.03		\$294,017.28
Pleasanton Arsenal, Dover, N. J. 1917.			1,472.78	18,000.00				18,000.00
Rock Island Arsenal, Rock Island, Ill. 1915.		19	1,951.14	60,500.00				26,472.78
1916.				584,000.00				60,500.00
1917.	10,131.17		24,308.71					586,961.14
Rock Island Bridge, Rock Island, Ill. 1916.				396,200.00				19
1917.			6,850.43					84,437.88
Rock Island power plant, Rock Island, Ill. 1915.	409.02		3,121.40	18,000.00				396,200.00
1916.	50.19							6,850.43
1917.								18,000.00
San Antonio Arsenal, San Antonio, Tex. 1917.				12,500.00		12.06		409.02
Springfield Arsenal, Springfield, Mass. 1915.	2,800.00		269.13	60,000.00				3,192.66
1916.	30.17			32,200.00				12,564.07
1917.	228.42							60,000.00
Watertown Arsenal, Watertown, Mass. 1917.			500.66					32,200.00
Watervliet Arsenal, West Troy, N. Y. 1916.	3,874.32		6,738.70	32,600.00				30.17
1917.			167.93	772,600.00				726.06
Miscellaneous receipts. Ordnance material, proceeds of sales. Board of Ordnance and Fortification. Arms, uniforms, equipment, etc., Organized Militia: 1914.	29,040.89		26,993.58	720,000.00				32,600.00
1915.	19,237.22		736.75	13,720.53				772,600.00
1916.								27,126.00
Arming and equipping the militia.	18.00		2,203.04					724,042.23
	68,168.99		42,574.75					23,363.06
	106,760.50		30,106.27					63,709.00
	406,785.84							5,348.57
								186,217.45
								318,301.92
								33,694.50
								15.00
								70,394.96
								196,464.15
								451,718.41

National trophy and medals for rifle contest:									
1915.....	657.96	183.49	10,000.00					838.33	657.96
1916.....	96.59								279.08
1917.....		2,999.07							10,838.33
Armament of fortifications, Isthmian Canal.									
Army powder factory.....			600,000.00						600,000.00
Radio-dynamic torpedoes.....			1,167,000.00						1,167,000.00
Special aids and appliances for manufacturing arms, etc.....			1,000,000.00						1,000,000.00
Nitrate plants.....			20,709.59						20,709.59
Sodium nitrate storage, 1917.....			225,000.00						225,000.00
Civilian military training camps, 1916 and 1917.....			252,350.00						252,350.00
Rifle range for civilian instruction.....			17,366.09						17,366.09
Ordnance stores and equipment—civilian military training camps, 1917 and 1918, act June 15, 1917.....									
Ordnance stores, equipment, etc., for Reserve Officers' Training Corps, 1917 and 1918, act June 15, 1917.....			3,750,000.00						3,750,000.00
Ordnance stores and supplies for military equipment of schools and colleges, 1917 and 1918, act June 15, 1917.....			594,000.00						594,000.00
			218,000.00						218,000.00
NAVY TRANSFERS UNDER ARMY ACT, MAR. 4, 1915.									
Increase of Navy, armor and armament.....	111,006.29	24,170.72	398,162.75						\$503,339.76
Increase of Navy, ammunition.....			644,363.60						644,363.60
Arms, uniforms, equipment, etc., Naval Militia: 1916.....	7,248.00	3,298.00							10,537.00
1917.....	201,600.00	9,229.04	52,312.20						52,312.20
1918.....	200.00	7,751.65	3,029,048.28						3,239,877.32
Ammunition for ships of Navy, Board of Ordnance, Maintenance Quartermaster Department, Marine Corps: 1916.....									
1917.....									7,951.65
1918.....			828,816.50						828,816.50
New batteries for ships of Navy, 1915 and 1916.....			1,438,500.00						1,438,500.00
Construction and repair, Bureau of Construction and Repair, 1916.....	1,000.00	275.31							275.31
Construction and repair, Bureau of Construction and Repair, 1917.....									1,000.00
Ordnance and ordnance stores, Board of Ordnance: 1917.....			4,200.00						4,200.00
1918.....									
Batteries for merchant auxiliaries, Board of Ordnance.....			167,253.96						167,253.96
Batteries for merchant auxiliaries, Board of Ordnance, 1917-1920.....			745,137.80						745,137.80
Naval emergency fund.....			96,750.00						96,750.00
			279,487.80						279,487.80
			2,523,481.73						2,523,481.73
Total.....	10,339,874.31	2,092,536.83	1,158,817,029.28	96,410.73	1,399,768.13	2,403.28	1,172,763,158.99		

Statement of receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1917—Continued.

DISBURSEMENTS.

Appropriations.	Disburse- ments at arsenals, Ordnance Office, etc., 1917.	Paid and transferred by Treas- ury set- tlements, etc., dur- ing fiscal year 1917.	Deposited in Treas- ury as proceeds of sales and miscel- laneous receipts.	Covered into surplus funds of Treasury on June 30, 1917.	Due from other ap- propria- tions.	Balance to credit of disbursing officers on June 30, 1917.	Amount in Treas- ury not reported to credit of appro- priations on June 30, 1917.	Balance in Treasury June 30, 1917.	Total.
Ordnance service:									
1915.....	\$130.17			\$267.93		\$66.00	\$2.04	\$1,217.12	\$401.04
1916.....	2,223.97					59,146.36	1,411.48	20,255.56	64,986.03
1917.....	14,040.81							2,650,000.00	503,819.86
1917 and 1918, act June 15, 1917.....									2,650,000.00
Ordnance stores, ammunition:									
1914 and 1915.....				147.10				141.18	147.10
1915 and 1916.....	14,822.36	27				2,353.39		1,346.11	14,963.81
1916 and 1917.....	255,565.70	79.26				1,606,967.21	45.00	6,781,647.60	259,344.46
1917 and 1918.....	1,567,877.04	42,458.90			\$1,003.35			131,048,325.00	10,000,080.00
1917-1919, act June 15, 1917.....									131,048,325.00
Ordnance stores and supplies:									
1914 and 1915.....				693.44				388.53	693.44
1915 and 1916.....	54,985.22	220.14				66,559.90	289.51	6,420.53	55,604.37
1916 and 1917.....	765,758.05	2,891.05				1,049,307.80	229.45	5,181,244.87	871,896.06
1917 and 1918.....	4,209,371.03	59,543.12			303.73			105,550,000.00	10,500,000.00
1917-1919, act June 15, 1917.....									105,550,000.00
Small-arms target practice:									
1913 and 1914.....				84.47					84.47
1914 and 1915.....	22,000.00			103.80				245.34	22,103.80
1915 and 1916.....	56,974.38	11.84				22,457.05	976.26	8,115.04	57,231.56
1916 and 1917.....	362,526.63	1,540.99				446,051.88		1,124,596.17	395,618.97
1917 and 1918.....	1,429,111.01	241.99						17,500,000.00	3,000,000.00
1917-1919, act June 15, 1917.....									17,500,000.00
Repairs of arsenals:									
1914.....				399.14					399.14
1915.....	20,618.05			808.82		630.47	3.12	386.88	21,960.47
1916.....	106,217.85	215.66				3,370.39		110,190.78	110,190.78
1917.....	198,049.55	166.57				114,736.71	307.52	36,737.55	350,000.00
1917 and 1918, act June 15, 1917.....								400,000.00	400,000.00
Replacing ordnance and ordnance stores:									
1911 and 1912.....				47.59					47.59
1914 and 1915.....				77.91				71,718.94	77.91
1916 and 1917.....	199,391.70	59.87				50,087.80		30,507.80	321,258.81
1918 and 1919.....	412,444.41	1,364.09				54,484.48	776.92	30,507.80	499,577.70
1917 and 1918.....	17,843.98	1,768.05				137,176.90	40,088.21	1,018,044.79	1,208,921.93

Manufacture of arms:									
1912 and 1913.....	34.58	14.79	34.58	7.50	16.39	34.58	10.39	34.58	34.58
1914 and 1915.....	343.77		343.77			343.77		343.77	343.77
1916.....	811,100.45	1,671.64	153,836.31	18,320.26	1,829.70	153,836.31	1,829.70	153,836.31	153,836.31
1917 and 1918.....	1,370,128.39	3,614.63	1,370,128.39	908,948.62	158.34	1,370,128.39	158.34	1,370,128.39	1,370,128.39
1917-1919, act June 15, 1917.....	3,532.22		3,532.22	56.24		3,532.22	37,419.92	3,532.22	3,532.22
Automatic rifles.....	188,215.50	945.18	106,449.10	7,687.66		188,215.50	981.25	188,215.50	188,215.50
1911 and 1912.....	106,449.10	1,318.39	362,256.27	411,530.77		106,449.10	8,789.08	106,449.10	106,449.10
1916.....	362,256.27		362,256.27			362,256.27	5,224,865.57	362,256.27	362,256.27
1917 and 1918.....							5,000,000.00		5,000,000.00
1917-1919.....							65,900,000.00		65,900,000.00
Automatic rifles, r National Guard:									
1917 and 1918, act June 15, 1917.....	277,542.53	80.47		116,128.71		277,542.53	5,607,248.30	277,542.53	277,542.53
1917-1919.....							2,500,000.00		2,500,000.00
Exchanging or issuing new pistols, ammunition, etc.,									
Organized Militia.....	16,150.65		50,153.31	42,812.50		16,150.65	44.77	16,150.65	44.77
Field artillery for Organized Militia.....	108,273.76	971.68	108,273.76	152.81		108,273.76	140,276.73	108,273.76	108,273.76
1913-1915.....	1,680,465.06	2,106.03	1,680,465.06			1,680,465.06	267.61	1,680,465.06	1,680,465.06
1914-1916.....							42,734.27		42,734.27
1915-1917.....									
Ammunition for field artillery for Organized Militia:	120.96	1.08	64,410.86			120.96	226.40	120.96	120.96
1913-1915.....	64,410.86	99,157.92	1,265,435.43	3,706.80		64,410.86	156,092.88	64,410.86	64,410.86
1914-1916.....	412,874.14	415.70	412,874.14	610,251.01		412,874.14	18,976,956.15	412,874.14	412,874.14
1915-1917.....									
Field artillery for National Guard, 1917 and 1918.....	3,077,816.50	184.23		469,692.86		3,077,816.50	16,502,306.41	3,077,816.50	3,077,816.50
Ammunition for field artillery for National Guard, 1917									
and 1918.....	12,694.93	500.00		2,228.06		12,694.93	29,102.13	12,694.93	12,694.93
Equipment of Coast Artillery armories, Organized Mi-	5,619.54	38.00		11,398.81		5,619.54	52.31	5,619.54	5,619.54
lita.....	8,287.24	56.75				8,287.24	490,256.20	8,287.24	8,287.24
Armored motor cars:							3,900,000.00		3,900,000.00
1916.....									
1917.....									
Supplying and exchanging Infantry equipment, Na-									
tional Guard, 1917.....	400,000.00					400,000.00		400,000.00	400,000.00
Arms, uniforms, equipment, etc., for field service,	267,861.24					267,861.24		267,861.24	267,861.24
National Guard, 1917.....	167,729.28					167,729.28		167,729.28	167,729.28
Arming, equipping, and training National Guard.									
Equipment and maneuvers, Organized Militia, act									
July 8, 1912.....	9,181.79					9,181.79		9,181.79	9,181.79
Encampment and maneuvers, Organized Militia:									
1914-1916.....	1,800.00					1,800.00		1,800.00	1,800.00
1915-1917.....									
1916 and 1917.....									
Testing machines:									
1915.....	32.00					32.00		32.00	32.00
1916.....	2,664.60					2,664.60		2,664.60	2,664.60
1917.....	13,608.47	12.46				13,608.47	50.00	13,608.47	13,608.47
Fire control at fortifications.....	62,168.78	62.53				62,168.78	578,47.18	62,168.78	62,168.78

Statement of receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1917—Continued.

DISBURSEMENTS—Continued.

Appropriations.	Disbursements at arsenals, Ordnance Office, etc., 1917.	Paid and transferred on Treasury set-lements, etc., during fiscal year 1917.	Deposited in Treasury as proceeds of sales and miscellaneous receipts.	Covered into surplus funds of Treasury on June 30, 1917.	Due from other appropriations.	Balance to credit of disbursing officers on June 30, 1917.	Amount in Treasury reported to credit of appropriations on June 30, 1917.	Balance in Treasury June 30, 1917.	Total.
Fire control in insular possessions.	\$7,080.25	\$40.38				\$46,257.95		\$1145.75.53	\$167,954.10
Antiaircraft guns, Army:									
1917 and 1918, act June 15, 1917								760,000.00	760,000.00
1917-1919								250,000.00	250,000.00
Ammunition for antiaircraft guns, Army:									
1917 and 1918, act June 15, 1917								1,640,000.00	1,640,000.00
1917-1919								200,000.00	200,000.00
Submarine mines:	328,736.23	913.46				82,237.14		310,866.45	722,753.28
Act June 15, 1917	1,274.94	822.57				520.66		3,426,330.00	3,426,330.00
Panama Canal								240,677.43	243,265.60
Fire control at fortifications, Panama Canal	9,136.71					2,107.54		267,500.00	267,500.00
Submarine mines in insular possessions	65,609.70					36,304.77	\$1.17	48,581.13	59,825.68
Submarine mines in insular possessions, act June 15, 1917								100,026.43	204,942.07
Fortifications in insular possessions	1,058,611.62	20,268.26				387,644.87		73,000.00	73,000.00
Fortifications in insular possessions, act June 15, 1917								4,225,530.21	5,681,222.08
Panama fortifications	66,236.63	869.44				50,453.76		6,860,000.00	6,860,000.00
Armament of fortifications, Panama Canal	544,625.01	26,066.91				262,824.08		46,639.74	164,179.57
Armament of fortifications, Panama Canal, act June 15, 1917								1,137,626.02	2,001,131.97
Armament of fortifications	7,293,653.57	35,263.01				\$363.46		3,855,000.00	3,855,000.00
Armament of fortifications, act June 15, 1917								46,365,760.15	56,792,542.88
Proving Ground		407.74						581,205,407.74	581,205,407.74
Augusta Arsenal, 1915				\$81.50				700,000.00	700,000.00
Benicia Arsenal	24,332.30					3,718.13		81.50	28,050.43
1915									
1916	20.50			.55				56.15	56.15
1917	19,367.80					4,132.11		23,500.00	23,500.00
Frankford Arsenal	245,761.73					192,115.96		737,857.30	737,857.30
1916								12,794.76	12,794.76
1917	161,771.29					7,528.71		193,000.00	193,000.00
Ordnance depot, Honolulu, Hawaii	26,915.27	151.31				39,817.42		266,500.00	266,500.00
1917	13,310.90					20,189.10		33,500.00	33,500.00
Ordnance depot, Manila, P. I.								1,061.36	1,061.36
Ordnance depot, Panama Canal		1,081.36						426,376.23	426,376.23
		105,623.77							

[illegible]

Statement of receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1917—Continued.

DISBURSEMENTS—Continued.

Appropriations.	Disbursements at arsenals, Ordnance Office, etc., 1917.	Paid and transferred on Treasury set-tements, etc., during fiscal year 1917.	Deposited in Treasury as proceeds of sales and miscellaneous receipts.	Covered into surplus funds of Treasury on June 30, 1917.	Due from other appropriations.	Balance to credit of disbursing officers on June 30, 1917.	Amount in Treasury not reported to credit of appropriations on June 30, 1917.	Balance in Treasury June 30, 1917.	Total.
Ordnance stores and supplies for military equipment of schools and colleges, 1917 and 1918, act June 15, 1917.								\$218,000.00	\$218,000.00
Navy Transfers UNDER ARMY ACT, MAR. 4, 1915.									
Increase of Navy, armor and armament.	\$126,866.57					\$383,110.44		322,862.76	503,338.78
Increase of Navy, ammunition.	19,173.13					5,000.00		639,363.60	644,363.60
Arms, uniforms, equipment, etc., Naval Militia: 1916	10,537.00					20,133.27		13,006.80	10,537.00
1917	207,742.09	\$51,220.32				11,080.36		2,969,834.55	52,312.20
Ammunition for ships of Navy, Board of Ordnance.	7,951.65					209,633.25		38,067.13	10,537.00
Maintenance, Quartermaster Department, Marine Corps: 1916	581,106.12					100.00		1,438,400.00	52,312.20
1917	275.31								3,239,877.32
New batteries for ships of Navy, 1915 and 1916.	441.18	558.82							7,951.65
Construction and repair, Bureau of Construction and Repair, 1916	487.04								828,816.60
Construction and repair, Bureau of Construction and Repair, 1917									1,438,400.00
Ordnance and ordnance stores, Board of Ordnance: 1917	32,897.60	8,950.03				1,217.60		2,465.36	1,000.00
1917 and 1918	3.51					44,968.44		80,447.89	4,200.00
Batteries for merchant auxiliaries, Board of Ordnance.	2,266.72					17,024.24		731,110.08	167,283.96
Batteries for merchant auxiliaries, Board of Ordnance, 1917-1920.	31,933.82					3,460.28		90,000.00	745,137.80
Naval emergency fund.	43.11					62,018.18		185,487.80	95,760.00
Total.	22,356,493.08	510,046.03	\$190,666.02	\$4,343.87	\$1,670.54	12,157,727.98	\$72,447.46	1,127,469,899.01	270,487.80
								2,271,781.73	2,532,481.78
									1,172,763,168.99

The total amount of the appropriations and allotments for the fiscal year 1917 was \$1,139,404,429.28. The total amounts with which the appropriations were credited, in accordance with the law, from sales, transfers, etc., was \$1,496,178.86. The total payments made by disbursing officers and by Treasury settlements during the year amounted to \$32,866,539.11. The total sales of condemned stores during the year amounted to \$185,217.45, all of which was credited on the books of the Treasury Department to "Ordnance material (proceeds of sales)." The total sales to other parties covered into the Treasury Department to the credit of the fund, "Miscellaneous receipts," amounted to \$5,348.57. The total amount to the credit of disbursing officers on June 30, 1917, was \$12,157,727.98, and the total amount in the Treasury on the same date was \$1,127,532,306.47.

FUNDS ON HAND AT THE BEGINNING AND CLOSE OF THE FISCAL YEAR.

The principal amounts on hand at the beginning of the year pertained to the following appropriations:

Ordnance stores and supplies, 1916 and 1917-----	\$871, 564. 07
Field artillery for Organized Militia, 1915-1917-----	1, 840, 379. 13
Ammunition for field artillery for Organized Militia, 1915-1917--	1, 534, 828. 84
Arming and equipping the militia-----	438, 895. 11
Armament of fortifications-----	3, 168, 512. 41

The status of these appropriations at the close of the fiscal year will be seen by reference to the tabular statement. The principal amounts on hand at the close of the fiscal year pertained to the following appropriations:

Ordnance stores, ammunition, 1917-1919, act June 15, 1917----	\$131, 048, 000. 00
Ordnance stores, supplies, 1917-1919, act June 15, 1917-----	106, 550, 000. 00
Manufacture of arms, 1917-1919, act June 15, 1917-----	55, 349, 000. 00
Automatic rifles, 1917 and 1918, act June 15, 1917-----	65, 900, 000. 00
Armament of fortifications, act June 15, 1917-----	581, 205, 000. 00

The available balances under the above-named appropriations at the close of the fiscal year are as follows:

Ordnance stores, ammunition, 1917-1919, act June 15, 1917----	\$64, 552, 500. 00
Ordnance stores, supplies, 1917-1919, act June 15, 1917-----	96, 260, 000. 00
Manufacture of arms, 1917-1919, act June 15, 1917-----	16, 646, 988. 43
Automatic rifles, 1917 and 1918, act June 15, 1917-----	60, 761, 840. 00
Armament of fortifications, act June 15, 1917-----	428, 242, 698. 57

TRANSFERS AND SALES OF SERVICEABLE ORDNANCE STORES.

The value of ordnance stores transferred to the executive departments and the Organized Militia during the last fiscal year for which settlement was made directly or by Treasury settlement amounted to \$303,745.17. Of this amount \$80,158.67 was on account of transfers to the Navy Department, \$157,675.44 on account of transfers to the Marine Corps, \$65,544.14 on account of transfers to other executive departments, and \$366.92 on account of transfers to the Organized Militia.

The practice of advancing militia funds to this department directly at the beginning of the year, so that the procurement of the stores required may be inaugurated, mentioned in previous reports, has worked satisfactorily and is being continued. A similar practice is also followed in connection with Navy and Marine Corps funds.

In other cases settlement is made directly or by Treasury settlement, the money received being taken up in the fund "Replacing ordnance and ordnance stores" and remaining available during the year in which the corresponding stores were transferred and the following year.

The total transfers and sales amounted to \$1,496,178.86.

PAYMENTS.

The total payments made by disbursing officers amounted to \$32,-356,493.08 and by Treasury settlement to \$510,046.03, a total of \$32,-866,539.11.

The amounts of disbursements made at the principal arsenals and in the Ordnance Office during the fiscal year are as follows:

Frankford Arsenal.....	\$10, 623, 006. 91
Rock Island Arsenal.....	8, 948, 550. 99
Springfield Armory.....	1, 976, 973. 86
Picatinny Arsenal.....	1, 786, 976. 18
Watervliet Arsenal.....	1, 228, 960. 84
Ordnance Office.....	4, 336, 795. 78

AMOUNTS COVERED INTO THE SURPLUS FUND.

The principal amounts covered into the surplus fund of the Treasury were:

Manufacture of arms, 1914 and 1915.....	\$343. 77
National trophy and medals for rifle contests, 1915.....	657. 96
Ordnance stores and supplies, 1914 and 1915.....	693. 44
Repairs of arsenals, 1915.....	806. 82
Rock Island power plant, Rock Island, Ill., 1915.....	409. 02

COMPARISON OF THE FISCAL STATEMENT WITH THAT OF THE PRECEDING YEAR.

Comparing the fiscal statement with that of the preceding year it will be found that the amount of appropriations during the year was increased from \$25,508,348.03 to \$1,158,817,029.28, an increase of \$1,-133,308,681.25. The amount of disbursements increased from \$12,-766,698.57 to \$32,866,539.11. The amounts received from transfers to the executive departments and the Organized Militia decreased from \$414,372.84 to \$303,745.17. This reduction was caused by the advancing of militia funds by this department and by the placing of Navy funds to the credit of this department on the books of the Treasury subject to requisition by disbursing officers of this department. The amount available at the close of the fiscal year increased from \$12,-437,547.57 to \$1,139,690,034.45, an increase of \$1,127,252,486.88.

CASH REWARDS FOR EMPLOYEES.

In previous annual reports reference has been made to the passage of an act authorizing the payment of cash rewards for the most valuable suggestions submitted by employees, and in my last report a table was submitted showing the payments made since the passage of that

act. That table is repeated below, including the data for the fiscal year 1917:

	Number of meritorious suggestions.	Total amount paid.	Average for suggestion.
Oct. 1, 1912, to June 30, 1913.....	12	\$148. 46	\$12.37
July 1, 1913, to June 30, 1914.....	7	169.36	24.19
July 1, 1914, to June 30, 1915.....	8	337. 46	42.18
July 1, 1915, to June 30, 1916.....	24	1,545. 44	64.19
July 1, 1916, to June 30, 1917.....	20	353.00	17.65

OPERATIONS OF THE LIABILITY ACT.

As stated in my last annual report, a new law on this subject was enacted September 7, 1916, so that the present year was divided, a part being under the old act and the remainder under the new act.

The results for this year do not enable ready comparison of the operation of the two laws, but it is expected that such a comparison may be obtained next year.

The results reported indicate a falling off in the number of accidents, which may be accounted for to some extent by additional precautions taken to prevent accident, and also to the provisions of the new law.

SMALL ARMS.

United States rifle, model of 1917.—Contracts were placed with the Remington Arms Union Metallic Cartridge Co., the Remington Arms Co. of Delaware, and the Winchester Repeating Arms Co. for 1,000,000 rifles. The preparation of specifications and detailed prints for these rifles was completed in June of this year. This rifle is, in fact, the Enfield rifle modified to use the United States caliber .30 ball cartridge, model of 1906. Tests indicate that this rifle will prove a most satisfactory weapon.

Battle sight.—Experience in the European war indicated that the battle sight with a setting for 547 yards was not effective, since much firing is done at ranges of 200 yards and less. Experiments were therefore conducted with a view to developing a battle sight with a setting for 200 yards, which could be applied to the model of 1903 rifle without impairing the leaf sight. Manufacture of an experimental lot has been inaugurated, and if the design shall prove satisfactory, provision will be made for the general issue of this sight. The design is such that it will be possible at a later time to remove these sights and restore those previously in use.

Sitascope and periscope attachment.—The sitascope and periscope sight attachment for the United States rifle, caliber .30, model of 1903, has been given preliminary test, with the result that an order has been placed for an improved design, which, when completed, will be thoroughly tested with a view to its adoption.

Ball cartridges, caliber .30, model of 1906.—Contracts for these cartridges have been entered into with the Remington Arms Union Metallic Cartridge Co., United States Cartridge Co., Winchester

Repeating Arms Co., Western Cartridge Co., and Peters Cartridge Co. Contracts were also placed with the United States Cartridge Co., Remington Arms Union Metallic Cartridge Co., Winchester Repeating Arms Co., Peters Cartridge Co., and Maxim Munitions Corporation for ball cartridges, caliber .45.

Bullets.—Experiments are being conducted with a view to obtaining a satisfactory tracer bullet, both caliber .30 and caliber .45. Preliminary tests are being conducted at the Frankford Arsenal with explosive bullets, which it is understood have been used with marked success abroad in aero combats. These tests have shown very promising results. Efforts are being made to develop an armor-piercing bullet less difficult of manufacture than that now in service.

Aeroplane ammunition.—Ammunition for use in aeroplanes is being set aside, specially marked, with a view to obtaining an especially accurate cartridge for this use.

Cartridge brass.—Experiments are in progress at the Frankford Arsenal with the object of determining the most satisfactory brass for cartridge cases for use in the service rifle and in machine guns. No determination has yet been reached.

Small-arms targets.—It having become evident that for instruction at ranges not greater than 300 yards a somewhat smaller target than the old 4 by 6 style "A" target would meet requirements, a new 4-foot sliding target has been designed which it is expected can be produced at only a small fraction of the cost of the 6-foot target.

EQUIPMENTS.

Organization of the equipment division.—At the time when the President announced the existence of a state of war between the United States and the Imperial German Government the equipment division organization in Washington consisted of one captain of the Regular Army and about 10 civilian employees. In view of the fact that the arsenals, which during peace time had been the source of supply of practically all items of personal and horse equipment, could be depended on to supply only a small portion of requirements on a war basis, it became necessary to effect an immediate and extensive reorganization of the equipment division in order that it might attempt its largely expanded responsibilities with any hope of success. Another captain of the Regular Army was added to the division. A plan of organization calculated to cover the needs of the division was drafted and steps were taken to secure as rapidly as possible reserve officers and civilian employees in the numbers required by the new plan. This work was accomplished in large measure prior to June 30, by which time the most important positions for which reserve officer appointments were to be made had been satisfactorily filled, and civilian employees secured in such number that the purchasing work of the division could proceed expeditiously and on a well-organized basis. It is expected that in a short time the total number employed in equipment division work will amount to 400, of whom approximately 50 will be commissioned officers and the remainder civilian employees. This number will probably increase to 700 before January 1, 1918, with about the same proportion of officers to civilian employees.

Purchasing raw material for Infantry and Cavalry equipment.—It early became evident that the needs of the Army for cloth and leather equipment would be so large as to make very heavy and important demands on the productive industries of the country, particularly as to cotton duck, webbing, and leather. It was therefore determined, as a matter of policy, that production of such raw material would be expedited, and at a considerable saving in price to the Government, if such raw materials should be purchased in large quantities by the department itself, and by the department distributed among equipment manufacturers, rather than to have the equipment manufacturers bidding against each other for materials they would need in the production of equipment on Government orders. This policy has been put into effect with excellent results, and it is believed that very important savings, particularly with respect to leather equipment items have been effected. As the work of the department progressed it was found that the same process could be applied to the procurement of small hardware parts needed in the fabrication of both cloth and leather equipment, and the policy was applied with reference to such parts with particularly gratifying results.

Steel helmet, body shield, and necklet.—The British type of helmet has been adopted by the Secretary of War as the official helmet for our Army, and has been designated as the steel helmet, model of 1917. Two hundred thousand of these helmets have been ordered from British sources of supply and will be delivered to our Army in France. Preliminary to inaugurating the manufacture of these helmets in the United States, careful experiments are being conducted to determine the best processes and the most suitable material. It is expected that manufacture of these helmets will be begun shortly by several of the concerns in whose plants experiments are now being conducted.

Coincident with the effort to develop the art of manufacturing helmets in this country, effort is being made to develop a design of helmet which shall not only better conform to our equipment, but shall also give greater protection than the English helmet.

Experiments have been conducted with respect to various types of body shields and neck protectors. So far the most satisfactory articles for this purpose have been found to be the British body armor, which weighs a little over 16 pounds, and the British silk necklet, weighing about 3½ pounds.

Periscope, model of 1916.—A simple trench periscope has been adopted during the past year, and about 65,000 have been manufactured or are in process of manufacture.

Cavalry equipment, model of 1917.—This equipment was materially modified by the Cavalry Equipment Board, after experiments and limited tests, and the board decided on a type of equipment designated as the model of 1917. Owing to the urgent demand for early delivery of large quantities of cavalry equipment, manufacture of the old model has necessarily been continued. In the meantime, however, quantities of equipment of the new model sufficient for comprehensive and thorough test have been manufactured and issued to the service.

Range finders for Infantry and Cavalry.—An 80-centimeter base range finder has been found entirely satisfactory from an optical standpoint, but is considered heavier than desirable. A 50-centimeter base range finder has recently passed a satisfactory test and has been adopted for issue to Infantry and Cavalry troops other than machine-gun organizations. Range finders of this type are being procured as rapidly as the manufacturing facilities of the country will permit, but it will be some time before general issue to the service can be made.

INSPECTION DIVISION.

During peace it has been the practice of the Ordnance Department to decentralize the work of inspection by assigning an officer from the nearest arsenal to inspect the manufacture of material being procured under contract, which inspection work was in addition to the regular arsenal work of the officer. This practice was necessary because of the limited number of ordnance officers available. When war became imminent steps were taken to establish an inspection division in the office of the Chief of Ordnance. The logical and ultimate arrangement will call for assigning to this division the inspection of all ordnance material manufactured in Government as well as in private establishments. Until the organization of the inspection division can be made equal to the larger task its responsibilities have been limited to the inspection of artillery ammunition, including explosives and trench warfare material. Separate organizations will inspect the manufacture of small arms, machine guns, and small-arms ammunition; gun carriages, telescopic sights, etc.; gun forgings and gun machining; and Infantry and Cavalry equipments.

Some idea of the magnitude and importance of inspection work is imparted by the fact that even when limited to the inspection of artillery ammunition and trench warfare material manufactured at private plants, the inspection division will require the services of at least 200 commissioned officers and about 2,000 civilian employees. Only two experienced officers can be spared to recruit, organize, and train this personnel. That satisfactory progress is being made is due, in great measure, to the patriotism which has prompted many prominent and successful manufacturers and mechanical engineers to surrender their business positions and serve the Government as officers in the Ordnance Reserve Corps.

SUPPLY DIVISION.

This division, which is in charge of Col. Charles B. Wheeler, was established on May 23, 1917, and its functions are to take charge of all ordnance and ordnance stores procured by purchase or manufactured for issue to the service, to arrange for the shipment of this material to designated points, for its storage and custody, for its preservation from deterioration, and for its issue to troops. It is the duty of this division to organize the necessary personnel for these activities, and for the work of the Ordnance Department with tactical organizations in the field, and at ports of embarkation. There

is effected through the creation of this division a consolidation and coordination of the supply work formerly distributed among three divisions, each of which was concerned with the production, storage, and distribution of certain classes of ordnance material. The objects of this consolidation are the attainment of greater efficiency and economy, centralization of responsibility, and better control.

In this division are being established and maintained complete records covering such subjects as: The quantities of each article of ordnance stores on hand in the storehouses at arsenals or at other points; the supply in prospect, and the quantities manufactured to date with balance due on all outstanding procurement orders; and the quantities required by organizations actually formed or being formed, both with respect to their initial equipment and its maintenance. These and various other data form a basis for the anticipation of the needs of the military forces, provide the requisite knowledge as to the orders given for the production of such supplies, the time at which they will be required, and the probable time of their delivery. It is estimated that this division will be required to handle during the next year and a half material amounting to approximately 9,987 carloads per month, aggregating approximately 210,840 tons, and occupying a space of approximately 11,959,000 cubic feet. For the storage of this vast amount of material it will be necessary to construct and operate storehouses at ports of embarkation and elsewhere involving the expenditure of approximately \$25,000,000.

NITROGEN FIXATION.

It is estimated that the Army will need during the coming year between 250,000 and 300,000 tons of concentrated nitric acid for explosives. To arrive at the aggregate needs of the United States there must, of course, be added the requirements of the Navy, and there must also be considered the nitric acid required in the production of munitions for export to our allies. There is at present but one source of supply—the sodium nitrate of Chile—the importation of which requires the service of many vessels which might otherwise be employed in the transportation of troops and supplies. Moreover, this importation may at any time be interrupted through private or official action in Chile, or possibly by enemy interference upon the high seas. Private users of nitrate maintain but small reserves in this country. The department has for some years been accumulating such quantities as available funds permitted, and during the past year has arranged for larger purchases than usual, but in comparison with the needs the present reserve is small.

In my last annual report I stated that progress was being made in the investigation of processes for the fixation of atmospheric nitrogen for the manufacture of nitric acid and other products required in the manufacture of explosives, with a view to relieving this country from dependence upon importation of sodium nitrate. In the course of the past year a committee appointed from the membership of the National Academy of Sciences and the American Chemical Society submitted a report upon this project. Special agents who had been sent abroad to study the methods and processes there used, in their

reports, submitted subsequently to that of the committee before referred to, much valuable information including cost and other data. This necessitated a further consideration of the matter based upon the entire knowledge acquired from all sources, and for this purpose a Committee on Nitrate Supply was appointed by the Secretary of War whose membership embraced representatives of the Army and Navy, and of the Departments of Agriculture, Commerce, and the Interior, as well as several eminent scientists and engineers not connected with the Government. This committee submitted its report which received the approval of the President on July 13, 1917, at which time the Ordnance Department was designated as the agency to carry out the recommendations contained in the committee's report. The plans and preliminary preparations which have been made during the past year by the department will enable this project to be executed with the least practicable loss of time.

FACILITIES FOR THE MANUFACTURE OF SMOKELESS POWDER.

Active preparations for waging war on a large scale have developed very large requirements for powder and high explosives. These requirements are rendered more difficult of meeting due to the necessity for furnishing our allies with these materials. However, the capacity has been so greatly increased by purchases made in this country by the allies during the last three years that the task, from this point of view, has been greatly reduced.

Early deliveries of smokeless powder being essential, the old system of air drying, requiring from 100 to 120 days, has been superseded to a large extent, especially for smaller-grain powders, by a new system of water drying, which expedites final delivery of powder from 75 to 100 days. In other respects the system of manufacture, as covered by the specifications for smokeless powder in effect prior to the beginning of the war, has remained practically unaltered.

The value of the use of explosives in warfare is becoming more and more apparent, and more and more dependence is being placed on the proper utilization of the forces stored in them. This development calls for an enormous quantity of high explosives, and the requirements have increased to such proportions that they can not be met by the adopted standard explosives, due to the impossibility of supplying some of the raw materials. This has led to the use of various explosives, so that if a shortage shall develop in one, it can be met by the use of another, or perhaps by a combination of several.

While the present capacity of the country for the production of both smokeless powder and military explosives is so large that its war requirements will necessitate only a comparatively small percentage of increase, this increase must also be carried through all of the raw materials entering into the finished product which, of course, considerably increases the difficulties of the situation.

SEACOAST GUNS AND MORTARS.

Installed armament.—Reports received from armament officers and from the Coast Artillery indicate that the guns and mortars mounted

in the seacoast fortifications have been maintained in a satisfactory state of efficiency during the year. No serious defects were developed during the annual target practice of the troops. There have been some difficulties with the model of 1898 Driggs-Seabury masking parapet mounts, which were acquired during the Spanish War and have never been very satisfactory. These troubles are being remedied, but in the meantime it is intended to mount the guns on carriages of a new design which will make them available for both antiaircraft and mine-defense use. In the proof firing of a 14-inch disappearing carriage at Panama a defect developed in the kick-down buffers of the elevating mechanism, which was due to a draftsman's error, resulting in the application to the piston of bronze liners which in action were forced from their seats, causing jamming. This trouble has been corrected.

Gun construction.—The designs of new large-caliber cannon for fixed seacoast mounting and for railroad-car mounting were completed, and types are under manufacture. New types of 3-inch field guns and 3-inch antiaircraft guns are under manufacture in quantity. These guns are fitted with the drop-block type of breech mechanism, in place of the interrupted screw type previously used. The antiaircraft gun is equipped with a semiautomatic breech operating device, while the field-gun mechanism must be opened by hand but is closed automatically upon inserting the projectile. The work of placing the new type of field gun in service has been somewhat delayed, due to the change in caliber, whereby the gun has been converted to a 75 mm. (2.95-inch) gun, and chambered for French ammunition. Thirty-five of these guns were completed prior to the authorization of this change, but will be relined and converted to the 75 mm. caliber before being placed in service.

The new type of antiaircraft gun for use on automobile truck mount has been designed and orders have been placed for a considerable number.

MACHINE GUNS.

The board referred to in my last report continued tests of various types of machine guns at the Springfield Armory, beginning in May last, and has submitted a report. A number of guns were declared to be efficient for service, and procurement of these various types has, due to the existence of a state of war, been to a large degree a question of ability to secure deliveries. In other words, the number of machine guns on hand when war was declared was so small that it was necessary to keep going at the greatest possible capacity those machine-gun factories which were already in operation and to utilize their output when the guns so manufactured had been reported by the board as efficient, even though they may not have been reported as most efficient. Every energy has been bent to secure satisfactory output, and considerable progress in this direction is being made. Funds appropriated to date are adequate for the purpose, although approved requirements have vastly increased, even within the last few months, both for divisional organizations and for aircraft service. Satisfactory cooperation is being had with the Signal Corps in the procurement and application of machine guns to aircraft work.

FIELD ARTILLERY MATÉRIEL.

Development in test of field artillery along the lines referred to in my last report has continued. Three-inch guns with split-trail carriages are being manufactured in quantity, and the 3.8-inch howitzer and its carriage are in condition for such manufacture. The pilot 4.7-inch gun and split-trail carriage and the pilot 6-inch howitzer and split-trail carriage have not yet been completed and tested, progress of their development having been interfered with because of the need for prompt manufacture of already developed types required by the war. Very cordial and useful cooperation is being given by our allies in regard to field artillery matériel, which is being utilized to the greatest possible extent.

SUPPLY OF MOBILE ARTILLERY.

Progress of manufacture under appropriations made for the last fiscal year was at the usual rate up to the time of the declaration of war. It has since been accelerated and very considerable orders have been placed under deficiency and emergency appropriations. Attention has frequently been called in my reports to the considerable length of time required for the manufacture of field artillery, and the need for preparation in advance. While considerable progress in this direction has been made in the last few years as compared with previous years, it was far from adequate for a state of war with a first-class power, such as now exists. The supply of this class of matériel to our troops will, therefore, necessarily be slow and disappointing, although every possible advantage has been taken of the assistance secured from abroad and of the time that might be saved by producing foreign types in this country.

DESIGNING WORK.

The course of work of designing has been changed by the entrance of the United States into war so as to practically limit the activities to those classes of matériel which it is anticipated will be immediately needed in campaign. New designs of fixed armament have, therefore, either been greatly slowed up or temporarily abandoned. Adaptations of some foreign designs to manufacture in this country have been necessary. The work has been promptly taken up and is being pushed with vigor.

IMPROVEMENTS IN INSTALLED SEACOAST GUNS AND CARRIAGES.

Modification of the 14-inch disappearing carriage so as to permit a maximum elevation of the gun of 20 degrees is in progress; but due to war conditions will not be completed in the near future. Other modifications and improvements have been temporarily suspended.

The work of maintaining the armament of fortifications has been continued during the year.

MOTOR EQUIPMENT AS APPLIED TO ORDNANCE MATÉRIEL.

This branch of the work of the Ordnance Department has increased very greatly, due to the determination to motorize certain

classes of field artillery, to increase the motor equipment in ammunition trains, and to have all such motor equipment supplied by this department. Other special types of motor equipment have also been added. Satisfactory progress is being made, including the training of very considerable numbers of officers and men in the operation and maintenance of such equipment.

COAST ARTILLERY PRACTICE.

Reports received during the year of Coast Artillery target practice indicate a generally satisfactory behavior of the ordnance matériel used in this work.

The high pressures which were encountered in target practice during prior years were this year limited to but a few isolated cases. The practical elimination of these phenomena is due to the introduction and use of the single-section charge for major-caliber guns, and the segregation of certain powder lots which were under suspicion. A careful analysis of the performance on the part of all lots of powder in service was made and, as a result, whenever an excessive pressure was reported, the powder lot in question was investigated and its further use prohibited, if no satisfactory explanation could be found for the phenomena. The pressures recorded in practice have been card indexed so that the behavior of different lots of powder in various target practices can be readily inspected. This is of particular value where the irregularities of performance of a certain lot can be directly traced to the locality in which it is stored. A graphic chart indicates the location of every charge of each particular lot of powder and whenever suspicion is cast upon any particular lot, by reported excessive pressures, the coast defenses having in storage charges made up of the particular powder can be promptly warned.

The study of the effect of storage conditions in tropical climates on the stability of powders is being continued. It has been found that the effect of high magazine temperature has not been so much toward lowering the stability, or safety qualities, of the powder as to increase the potential or power. Where charges have been reduced correspondingly more satisfactory action has been obtained. This and other phenomena have led to making a study of the ageing of smokeless powders, and an elaborate series of tests are now being conducted with the hope that a scale may be constructed by the use of which the weight of the charge can be adjusted to compensate for the change in potential incident to the age of each particular lot of powder.

FIELD ARTILLERY PRACTICE.

On account of the conditions existing since July 1, 1916, due to the situation on the Mexican border, the great increase in the Field Artillery, and the war with the Imperial German Government, full advantage has not been taken of the increased allowances of ammunition for field artillery target practice. The increase in personnel of the Field Artillery has resulted in much attention being given to the elementary firing problems. The discontinuance of

the School of Fire of the Field Artillery at Fort Sill has further reduced opportunities to observe behavior of Field Artillery ammunition. In general, the reports received indicate that the ammunition issued has given very satisfactory results. No defects, other than some of a minor nature, have developed in the matériel.

SANDY HOOK PROVING GROUND.

Sandy Hook Proving Ground was commanded by Col. C. L'H. Ruggles, who is also president of the Ordnance Board, member of the Board for Testing Rifled Cannon, and armament officer of the Sandy Hook armament district.

The amount of proof work completed during the year was greater than that of preceding years; it included, among others, 51 tests of armor plate; 294 tests of fuzes; testing and retesting 277 lots of powder; and the proof firing of 14 guns of various calibers. This entailed the preparation and completion of 85 programs of tests and the firing of 26,716 rounds from cannon.

U. S. S. "Ordnance."—The steamer *Ordnance* carried 22,335 passengers and 2,273,113 pounds of freight during the year. The distance traveled was 13,201 nautical miles, and the coal consumption 1,010 long tons.

ROCK ISLAND ARSENAL.

The arsenal was commanded by Col. George W. Burr, who is also ordnance officer of the Central Department.

Volume of business.—The volume of business was largely increased over that of the preceding year. In the property department the number of shipments of stores received and issued during the year was 16,543, comprising 274,063 packages, weighing 41,508,246 pounds. In addition there were received for manufacturing purposes raw materials aggregating 52,744,507 pounds. The number of invoices of stores received and issued was 10,739, and the total number of quartermaster's bills of lading received and issued was 4,513. In the disbursing division the total number of cash vouchers paid was 7,742. The disbursements for material amounted to \$6,550,750.32, and for labor, \$2,577,161.82. The average number of employees was 3,243, varying from a minimum of 2,263 to a maximum of 4,876 on June 30, 1917. As the declaration of war occurred late in the fiscal year, and the increased activity of the arsenal was largely due to the prevalence of war, the scale of operations and the volume of business reached a maximum for the year at its close.

Issues to the service.—Issues to the service and to depots for reissue have been promptly made throughout the year, except in those cases where the necessary stores were not on hand and had to be purchased or fabricated before issue. These issues, as well as the receipts of material for manufacturing purposes, and of finished equipment from contractors, increased in volume enormously toward the end of the fiscal year and emphasized the inadequate storage and handling and shipping facilities of this arsenal.

New constructions.—The construction of a 300,000-gallon elevated water tank is in progress and will be completed at an early date. The contract for the artillery vehicle storehouse, for which an appropriation of \$34,000 was made, has been let, and work is in

progress. The storehouse will be of reinforced concrete construction with two floors and an attic. A bathroom addition to the barracks building is in course of construction and is expected to be completed by the end of the calendar year.

Under appropriations aggregating \$475,000, seven nitrate and eight ammunition storehouses are being constructed under contract. These are one-story buildings, approximately 50 by 200 feet, and 14 feet from ground line to eaves. Funds for additional ammunition and nitrate storehouses became available on June 12, 1917, and their construction will be undertaken as promptly as practicable. During the year appropriations amounting to \$2,000,000 became available for a plant for assembling field artillery ammunition; the plant has been designed and is in course of erection. It is to have a capacity of 5,000 rounds per day of 24 hours, for calibers varying from 3-inch to 9.5-inch. The construction of this plant involved new and unusual features which it was difficult to cover in the usual form of construction contract; the contract finally executed is on a cost plus percentage basis. It is estimated that the plant will be completed ready for operation by the close of the calendar year. The sundry civil act approved June 12, 1917, also carries an appropriation of \$2,965,000 for the construction of a new artillery vehicle plant. This plant will be equipped for the manufacture of artillery carriages up to 12-inch caliber. The plans provide for the removal of the existing plant from Shops G and I, these buildings to be then utilized for general storage purposes. The contract for the new building has been entered into on a cost plus percentage basis, and the plans are well advanced. It is anticipated that the new shop building will be completed some time in the spring of 1918. The last-mentioned appropriation also provides for the construction of two-story, basement, and attic connections between Shops A and C, B and D, G and I, and H and K, each 60 feet wide by 90 feet long, joining opposite porticos of existing buildings. Work has been begun on this connection between the armory shops B and D. The extensive additions to the shop plant require additional steam-heating facilities, and for this purpose an appropriation of \$165,000 has been made, and plans for the work are now under consideration. Additional power being necessary for the new manufacturing plants, funds from the appropriations for these plants have been set aside for meeting this requirement. The plans contemplate the construction of a new substructure which will extend from the eastern end of the present power house in a southeasterly direction to the Sylvian Island shore. When this work shall have been completed, the portion of the present dam between the eastern end of the power house and the Sylvian Island shore will be removed. The new substructure will provide room for the installation of eight 57-inch turbines. Space will also be provided for the installation of two 40-inch inclosed scroll type water turbines for driving the exciters. Funds at present available are sufficient for the installation of four of the larger water turbines and for one exciter. The 57-inch water turbine will give 456 horsepower at 11 feet head; the exciter will provide 230 horsepower at the same head. These wheels will drive four 430 Kv-a direct-connected generators and one 130-kilowatt exciter.

Work on the excavation is in progress and it is hoped to have the entire development completed during the summer of 1918. In addition to this new power development it is proposed to transmit power to the shops at 2,300 volts, in place of 600 volts, as at present. Plans for laying a new floor on the Moline Bridge, for which purpose an appropriation of \$14,000 was made on June 12, 1917, have been completed and the contract has been let.

On June 12, 1917, also, an appropriation of \$125,000 became available for a plant for the manufacture of rifle and hand grenades, including the necessary buildings. The proposed plant will have a capacity of 2,000 complete grenades per day. The plan contemplates the installation of the machine tools necessary for machining the parts of these grenades in the new artillery vehicle plant, while the grenades are to be loaded in the new ammunition assembling plant.

Wednesday noon, June 20, 1917, telegraphic instructions were received at this arsenal to construct a temporary barracks building for the accommodation of 100 men of the Ordnance Enlisted Reserve Corps. This building was completed and ready for occupancy on Friday, June 22. Temporary mess halls, baths, and toilets were also provided.

The sundry civil act approved June 12, 1917, before referred to, also carries an appropriation of \$1,500,000 for a proving ground for Field Artillery and its ammunition. A tract of land comprising approximately 12,500 acres, located on the Mississippi River, near Savanna, Ill., has been selected as the most suitable to be obtained, and arrangements for its purchase are under way.

Welfare of employees.—Continued attention has been given to the subject of adequate safety devices to reduce the number of preventable accidents. Better lighting facilities have been provided. The employees' school, established for the purpose of giving to employees who desire it instruction in simple mathematics and in the reading of drawings, has been continued with beneficial results. Efforts to interest the proper class of boys in the apprentice course at the arsenal are meeting with gratifying success. These apprentices are required to attend school four hours each week—two sessions of two hours each. The subjects pursued, theoretical and practical, are suited to the needs of the individual apprentices.

Principal output.—The shops in operation at the close of the year included a mobile artillery vehicle shop, harness shop, leather and cloth departments, smith shop, foundry, equipment shop, polishing and plating shop, woodworking and painting shops, and the armory shops. Orders to put the latter shops in operation were received in September, 1916. The output of these shops necessarily embraces a great variety of articles, including the manufacture and alteration of carriages, limbers, caissons, battery wagons, store wagons, reels, and carts for mobile artillery, the manufacture of Artillery harness, pack outfits for mountain artillery and machine guns, horse equipments for cavalry, personal and mess equipments for all arms of the service, targets and target supplies, miscellaneous insignia, cartridge storage cases and other material for Coast Artillery, in addition to the repair for reissue of unserviceable but repairable material of these different classes turned in by the service for that purpose. It has included a large amount of work on the Infantry

equipment, model of 1910, and targets and target material. In the mobile artillery carriage shops it has included work on a large number of Artillery vehicles of all kinds and calibers, and also much work on motor trucks and tractors of various types. Many road tests of these vehicles have been conducted and reports submitted.

Increased output.—Many improvements in the rapidity and economy of manufacturing operations have been made during the year. These improvements frequently largely increase the output, as is indicated by the following examples:

	Former output, 8 hours.	Present output, 8 hours.
Axle brackets, profiling instead of shaping	16	50
Swing bolts, profiling instead of slotting	25	100
Lock catches	10	30
Firing handle brackets, profiling instead of vertical milling	10	35
Traversing gear cases, all vertical milling changed to profiling	8	24
Hub bands, milling wrench slots with improved fixture	32	100
Tie-rod clamps, profiling operation instead of vertical milling	32	50
Caisson prop feet, improved drilling methods	48	125
Pintle hooks, improved methods in profiling instead of slotting	12	50
Hatchets, Cavalry, new method in milling	14	35
Brake-rod ends, circular milling jig	25	60
Chest rails, milling operation changed	20	50
Prop eyes for 3-inch gun caisson, circular milling	75	325
Linch-pin springs, converted 3-inch matériel, milling several at one setting	75	150

Reduction in labor costs.—Improvements in shop administration and in methods are frequently better indicated by the reduction in labor cost of an article than in its total cost, as it may happen that the cost of the material entering into the manufacture of the article, which cost is beyond the control of shop management, will offset any reduction in manufacturing costs. The following figures are, therefore, given as indicating some reductions which have been made in the labor costs of articles manufactured at this arsenal during the past year, as compared with former costs. These reductions are entirely due to better methods of doing the work or to slight changes in design for the purpose of facilitating manufacture. The actual wages paid the employees at the arsenal have been increased during the year, so that the showing in reduction is not as great as the improvements in methods would justify.

	Former cost per 100.	Present cost per 100.
Paper target "A"	\$0.12	\$0.11
Paper target "B," model of 1913	.31	.16
Lanyard handle	4.19	2.01
Handle for spreading tool	1.49	1.37
Paper target "Z"	.014	.012
Clamping screw for Schaller forge	20.70	18.88
New head retainer for repair of cylinders on 3-inch gun carriage, model of 1902	151.90	76.37
Door-prop drop guide for 4.7-inch gun limber and caisson, model of 1908	43.71	27.19
Chest (bottom half) for 4.7-inch gun limber, model of 1908	13.96	12.44
Chest (top half) for 4.7-inch gun limber and caisson, model of 1908	13.47	11.83
Wheel hanger yoke for 2.95-inch mountain gun pack outfit, model of 1910	101.00	56.30
Door tee for 3-inch gun caisson, model of 1902	30.37	12.87
Doubletree strap for 4.7-inch gun limber, model of 1908	190.00	75.00
Brake-rod spring for 6-inch howitzer limber and caisson, model of 1916	54.61	31.63
Wheel hanger arm for pack outfit, model of 1910, for 2.95-inch mountain gun	162.00	79.00
Wheel hanger hinge strap for pack outfit, model of 1910, 2.95-inch mountain gun	7.60	2.80
Bottom plate for Schaller forge tool chest, model of 1910	22.90	19.94
Brush plate for cradle brush for 3-inch gun carriage, model of 1902	52.10	8.60
Pintle with oil tubes and spring covers for 3-inch gun carriages, model of 1902	48.50	28.57

¹ Each.

	Former cost per 100.	Present cost per 100.
Hub liner for 50-inch and 60-inch wheels.....	\$61.00	\$47.00
Lunette, without nut, for 3-inch gun caisson, models of 1902 and 1916.....	84.06	45.67
Apron latch handle for 4.7-inch gun limber and caisson, model of 1908.....	49.24	20.49
Lower door handle for 4.7-inch gun caisson, model of 1916.....	47.28	8.08
Tire, including setting, for 60-inch wheel.....	194.00	177.00
Lock washer holder clevis for 3-inch gun carriage, model of 1902.....	10.31	7.72
Chest rail connection for 3-inch gun limber, model of 1902.....	8.65	6.00
Filling and drain plug wrench for 3-inch gun carriage, model of 1902.....	21.68	10.07
Wheel hanger yoke for 2.95-inch mountain-gun pack outfit, model of 1910.....	23.30	11.10
Doubletree strap for 4.7-inch gun limber, model of 1908.....	128.00	76.00
Brake rope hook.....	81.95	65.72
Segment rack for 3-inch gun carriage, model of 1902.....	13.33	10.38
Tripod rest (rear) for tripod hanger for Maxim automatic machine-gun pack outfit, model of 1910.....	16.90	10.63
Lunette (without nut) for 3-inch gun caisson, models of 1902 and 1916.....	164.00	43.00
Upper door handle for 4.7-inch gun caisson, model of 1916.....	70.06	30.83
Base frame for falling target "G," model of 1913.....	14.18	3.28
Tool kit for Schaller forge, model of 1910 (without contents).....	183.00	175.00
Halter bridle rein, model of 1910 (leather rein).....	106.00	103.00
Crupper, model of 1912.....	131.00	123.00
Axle seat cushion for 3-inch gun carriage, model of 1902.....	71.00	67.00
Shoeing box.....	28.00	25.00
Bacon bag for ration bag, model of 1912.....	1.99	1.64
Thong, for long and short lifting bar.....	.50	.30
Spare parts pouch for 2.95-inch mountain-gun carriage.....	67.00	63.00
Leather rein for halter bridle, model of 1910.....	8.76	6.94
Clamp-securing key for stitching horse.....	1.58	1.08
Packing box No. 1.....	6.80	4.69
Seat for stitching horse.....	23.12	12.88
Spoke for 50-inch wheel.....	5.06	3.02
Expert rifleman's badge, bronze.....	10.71	10.59
Bacon can, model of 1916.....	3.84	3.67
Strap loop clevis for pack frame, model of 1911.....	.71	.54
14-inch soft steel ring for wheel trace, model of 1908.....	1.23	.65

Reduction in total cost.—The following table gives a few of the reductions in total costs of articles made at the arsenal during the year:

	Former cost per 100.	Present cost per 100.
4.7-inch gun carriage, model of 1908 Mr (with tools, accessories, and spare parts).....	\$2,544.15	\$2,465.13
4.7-inch gun caisson, model of 1916 (with tools, accessories, and spare parts).....	1841.70	1622.07
4.7-inch gun limber, model of 1908 (with tools, accessories, and spare parts).....	1590.09	1425.41
Chest for forge limber, models of 1902 and 1902 Mr.....	1188.99	182.37
Chest for store limber, models of 1902 and 1902 Mr.....	1126.76	186.07
Apron latch for 3-inch gun carriage, model of 1902.....	14.26	13.74
Singletree for 3-inch gun limber, model of 1902.....	11.67	11.45
Neck yoke (steel).....	13.06	12.71
56-inch wheel.....	118.52	118.49
Limber axle bearing for 4.7-inch gun limber, model of 1908.....	18.62	15.30
Falling target "G," model of 1913.....	75.21	74.22
Monthpiece top for bayonet scabbard, model of 1910.....	5.49	4.05
Monthpiece top for bolo scabbard, model of 1910.....	7.13	4.89
Brake bracket tube (body only) for 3-inch gun carriage, model of 1902.....	12.92	12.33
Side rail (body only) for 3-inch gun limber, model of 1902.....	17.55	14.71
Lock washer holder for 3-inch gun carriage, model of 1902.....	70.97	51.68
Pack frame, model of 1911.....	15.86	14.94
Rear clip for cradle of 3-inch gun carriage, model of 1902.....	117.90	116.26
Shoulder guard clip (front or rear) for 3-inch gun carriage, model of 1902.....	9.45	6.88
Screw slot wrench for 3-inch gun carriage, model of 1902.....	50.88	23.19
Filling and drain plug wrench for 3-inch gun carriage, model of 1902.....	74.54	54.90
Wheel-hanger yoke for 2.95-inch mountain-gun pack outfit, model of 1910.....	180.50	122.73
Loading hand barrow for 6-inch howitzer carriage, models of 1908 and 1908 Mr.....	114.68	113.23
Doubletree strap for 4.7-inch gun limber, model of 1908.....	337.00	169.00
Officers' pommel pockets, model of 1912.....	796.00	515.00
Chain (complete) for wheel trace, model of 1908.....	19.89	13.51
Pintle latch spring.....	36.85	24.68
Handspike-fastening spring for 3-inch gun carriage, model of 1902.....	79.04	43.43
Locking-pin spring for 6-inch howitzer carriage, models of 1908 and 1908 Mr.....	90.38	59.86
Rifle carrier boot, model of 1912.....	367.00	471.00
Connecting pole, with prop chain, for 6-inch howitzer caisson, models of 1909 and 1916.....	2,933.00	2,673.00
Connecting pole for 4.7-inch gun caisson, models of 1908 and 1916.....	2,496.00	2,372.00

1 Each.

	Former cost per 100.	Present cost per 100.
Brake rope for 2.95-inch mountain-gun carriage.....	\$230.00	\$165.00
Wheel hanger, right, for pack outfit for 2.95-inch mountain gun, model of 1910.....	861.00	667.00
Ammunition box retainer for pack outfit for Maxim automatic machine gun, model of 1910.....	10.72	3.68
Pole prop pocket for 4.7-inch gun and 6-inch howitzer limber, model of 1905.....	91.77	60.23
Limber prop, complete, without chain, for 3-inch gun limber, models of 1902 and 1916.....	103.00	81.00
Left wheel hanger (complete) for pack outfit, model of 1910, for 2.95-inch mountain gun.....	617.00	578.00
Cradle brush for 3-inch gun carriage, model of 1902.....	236.00	140.00
Hub liner for 50-inch and 60-inch wheel.....	403.00	371.00
Apron latch, complete, for 3.8-inch howitzer carriage, models of 1915 and 1917.....	154.00	97.00
Female cover hinge for 4.7-inch gun carriage, models of 1908 and 1908 M1.....	65.46	40.59
Female door hinge for 4.7-inch gun limber and caisson, model of 1908.....	31.19	21.83
Bucket holder, complete, for 4.7-inch gun caisson, model of 1916.....	396.00	266.00
Bucket holder, complete, for 4.7-inch gun limber, model of 1908.....	442.00	290.00
Wheel hub for 50-inch and 60-inch wheel.....	1,486.00	1,268.00
Upper door handle, for 4.7-inch gun caisson, model of 1916.....	68.56	47.66
Ammunition hanger, complete, for pack outfit, model of 1911, for automatic machine rifle, caliber .30, model of 1909.....	299.00	268.00

Savings due to improved methods.—Since the amounts of funds allotted this arsenal for manufacturing purposes are based on the former cost of the articles ordered, the balance of these funds unexpended upon the completion of the articles ordered is a just measure of the economies in production due to improved arsenal methods, provided the cost of material remains constant. During the past year the cost of material has increased, yet in spite of this fact, on orders completed during the past year, the net savings measured as above indicated aggregate \$805,102.31, or 20.47 per cent of the total allotments involved.

Testing department and drafting room.—In the physical laboratory 8,533 separate tests were made. In the chemical laboratory 5,007 analyses were made. These included 3,900 leather analyses. Leather is tested for acid, ash, grease, and loading, and as a result a good quality of leather is being obtained. A total of 1,029 rounds were fired in proof and experimental tests at the proving ground. The work of the drafting room has been of the same character as in former years.

Saddlers' and Battery Mechanics' Schools.—About August 1, 1915, 32 enlisted men reported for instruction in the training school for saddlers and 4 for instruction in the training school for battery mechanics. Of this number, 24 completed the saddler's course and 4 the mechanic's course. All of the men who completed the course have been thoroughly instructed in the care and repair of the material used in their organizations.

SPRINGFIELD ARMORY.

The armory was commanded during the year by Col. W. S. Peirce.

Grounds and buildings.—An appropriation for the repair of Lincoln and Magazine Streets became available on July 1, 1916, and the work was completed during the fall of that year. Of those surrounding the main armory grounds, only Byers Street now requires similarly extensive repairs; no funds have yet been appropriated for this work.

Manufactures.—In September, 1916, greatly increased appropriations available for the manufacture of arms permitted beginning of an effort to increase the working force, with the object of obtaining full production for one shift, and ultimately for two shifts, as soon as practicable. There were at that time only 608 men on the rolls, while it was estimated that for two full shifts approximately 3,000 employees would be required. Due to the great development of military small-arms manufacture by private concerns during the preceding two years, very few men of the desired experience were available, and it was necessary to take on relatively unskilled men. This condition prevented as rapid an increase in the force as might otherwise have been made, since not only was it more difficult to obtain men, but those employed required much more supervision and instruction than usual. In addition to this handicap considerable numbers of the employees were either found, after trial, to be unsuitable for the work, and were consequently discharged, or after attaining some experience left to take employment in private factories where under the urgent conditions that obtained in those establishments and the extra pay given for overtime work they could earn greater pay. The effect of these conditions is shown by the following figures: From September 1, 1916, to April 1, 1917, 1,377 men were taken on. Of this number 608 were either discharged or resigned, leaving a net gain of only 769. On March 22 authority was received to place both shifts upon a 10-hour basis, with pay for overtime at the rate of time and a half. By this action the inequality that had existed between the armory and private establishments as to possible earnings was practically eliminated, and thereafter little difficulty was experienced in obtaining men, except in a few special designations.

The principal articles manufactured or repaired and the respective quantities of each are as follows: United States rifles, caliber .30, model of 1903, 13,285 manufactured, 3,910 repaired; knife bayonet, model of 1905, 55,198 manufactured; automatic pistol, caliber .45, model of 1911, 2,412 manufactured, 600 repaired; bolos, model of 1910, 1,000 manufactured; pistol-cleaning kits, model of 1912, 388 manufactured; arm chests for United States rifle, caliber .30, model of 1903, 1,123 manufactured, 363 repaired; arm lockers for automatic pistol, caliber .45, model of 1911, 779 manufactured; Colt's revolvers, caliber .38, 5,000 repaired. In addition to the completed articles mentioned manufacture of spare parts for United States rifle, caliber .30, model of 1903, estimated sufficient for a two years' supply, was practically completed.

Inspection of outside manufactures.—During the year the inspection of articles manufactured at Middletown, Hartford, Worcester, Conn., Utica, N. Y., and Cleveland, Ohio, was made from this armory. The total value of all material inspected is \$1,021,658.77. On April 30, 1917, the inspection work at the plant of the Mills Woven Cartridge Co., Worcester, Mass., was transferred from the Watertown Arsenal to this armory.

Courses of practical instruction.—The limited number of assistant officers on duty at this armory and the pressing need for their services on production work rendered it impracticable for any of them to take the practical course of instruction in the manufacture of the rifle. The course of instruction for machine-gun instructors was

continued on the same scale as last year until the month of May, when, under instructions from the Chief of Ordnance, the school was enlarged and Capt. J. S. Hatcher placed in charge. On June 30, 1917, 3 reserve officers, 25 members of Reserve Officers' Training Camps, and 52 civilians were under instruction.

Issues, receipts, and sales.—The total weight of stores issued was 5,250,600 pounds, and of those received, 818,838 pounds; 6,531 net tons of coal were received. The transportation of this property was covered by 1,211 bills of lading for issues and 436 for receipts. The value of the issue of spare parts and accessories for the rifle to the service, the National Guard, and the Navy and Marine Corps were as follows: Army, \$46,854.90; National Guard, \$10,812.51; Navy and Marine Corps, \$70,539.20; a total of \$128,206.61. Issues of parts for the automatic pistol, caliber .45, model of 1911, in financial terms, were made as follows: Army, \$6,639.49; National Guard, \$434.63; Navy and Marine Corps, \$2,052; a total of \$9,126.12. The value of issues of spare parts for the automatic machine rifle, caliber .30, model of 1909, were made as follows: Army, \$29,851.42; National Guard, \$158.69; Navy and Marine Corps, \$2,598.31; a total of \$32,608.42.

Sales of arms, etc., have been in excess of previous years. The value of the sales for this year is \$510,615.96, as compared with \$59,907.12 for last year.

FRANKFORD ARSENAL

During the fiscal year 1917 this arsenal was commanded by Col. George Montgomery.

Fiscal and property transactions.—The estimated value of ordnance property, the manufacturing orders for which were completed during the year, amounted to \$6,450,000. The value of ordnance property covered by manufacturing orders which had not been completed at the expiration of the fiscal year 1917 amounted to \$32,500,000. Considerable of this amount, however, includes component parts being purchased and which enter into these manufacturing orders. The amount disbursed during the fiscal year 1917 was \$10,625,335.88, and the corresponding number of money vouchers was 12,754. The weight of the property shipped during the fiscal year was 23,040,403 pounds, and the weight of the property received was 55,448,700 pounds; the corresponding number of property vouchers was 8,200. The minimum authorized stock at the end of the fiscal year was \$786,995.90, and the amount of the stock fund returned to credit of appropriations pertaining to the ordnance department by means of the utilization of surplus property and scrap amounted to \$309,132.24. The amount similarly returned during the preceding fiscal year was \$288,006.53. The average number of employees during the fiscal year was 3,243, and the average amount of the monthly pay roll was \$200,721.25; the average amount of the pay roll for the fiscal year 1916 was \$118,502.78. The value of the ordnance property completed during the year increased about 56 per cent over the fiscal year 1916 and about 59 per cent over the fiscal year 1915. The disbursements during the year were about 179 per cent greater than those for the fiscal year 1916 and about 123 per cent greater than those for the fiscal year 1915.

Administrative methods.—During the year the number of guards and watchmen was largely increased, in order to insure adequate protection of the arsenal under war conditions. This force of civilian guards was supplemented by one company of the National Guard of the State of Pennsylvania, later on by two companies, and these two were in turn superseded by a company of the New York National Guard. The arsenal has been closed to visitors who desire to use the grounds for recreation purposes. A permit, bearing his photograph, has been issued to each employee, giving him admission to the grounds. Owing to the increase in the number of employees it has been necessary to separate the civil-service section of the office from the time section and to place an officer directly in charge of the personnel.

Shop management.—The system of shop management as inaugurated several years ago in connection with the manufacture of small-arms ammunition, and subsequently extended to the manufacture of artillery ammunition, etc., continued to prove satisfactory, and the savings which may be attributed almost entirely to such improved shop management, exclusive of increases in the cost of material, has been considerable. Briefly it may be stated that the aggregate savings in the manufacture of small-arms ammunition, artillery ammunition, and sights, instruments, etc., since the introduction of scientific shop management have amounted to approximately \$2,464,205.06. The savings made by the utilization of surplus stock and scrap have aggregated during the five years, and since the establishment of the stock fund, approximately \$1,826,520.31.

The services of an efficiency engineer, Mr. H. L. Gantt, were procured during the year and he has proceeded, by utilization of appropriate charts and tables, to insure that work is provided in advance for every machine, and there is no question that he has materially increased production in the two shops on which he has thus far bent his energies.

The artillery-ammunition department and the small-arms ammunition department have been organized during the past year along the lines of production, design, and inspection, and the results thus far have been most gratifying. The assembling of artillery ammunition has, in fact, trebled within the last four months, and experimental work has proceeded with a celerity never heretofore attained. It is believed that inspection is now better than ever; the inspecting officer has been given charge of all material and components in the various component rooms and, in the case of ammunition requiring ballistic test at the proving ground, he has charge of the ammunition until the tests have been completed, with authority to accept or reject the material tested.

Manufacture of small-arms ammunition.—The principal articles of small-arms ammunition manufactured during the year were: 77,435,640 ball cartridges, caliber .30, model of 1906; 10,282,000 blank cartridges, caliber .30, model of 1909; 1,674,000 ball cartridges, caliber .45, for automatic pistol; 440,346 subcaliber cartridges, caliber .30; 250,000 gallery practice cartridges, caliber .30; 122,420 high-pressure cartridges, caliber .45; 157,000 high-pressure cartridges, caliber .30; 221,000 cartridges, caliber .30, model of 1906, with Du Pont experimental powder. The total amount of small-arms ammu-

munition manufactured during the fiscal year was 91,740,646 rounds, in comparison with 60,766,120 rounds for the fiscal year 1916.

This arsenal was not successful in manufacturing an entirely satisfactory primer after it was necessary to utilize composition made from raw materials of domestic manufacture, and a certain number of misfires and hangfires consequently resulted in a portion of the year's product. When it was found that the primers were not satisfactory, primers for caliber .30 cartridges were purchased from a private manufacturer. Experiments have been made to give a cartridge case which would give satisfactory results in all types of machine guns. Such a case was finally developed and is now being perfected.

The savings made in the manufacture of small-arms ammunition during the year, as compared with the cost of the same ammunition previous to the introduction of improved shop management, amounted to \$143,032.15; but there was, however, owing to the great increase in the cost of materials, an actual loss in the manufacture of small-arms ammunition, as compared with the preceding year, amounting to \$526,013.54. The average appropriation cost of caliber .30 rifle ammunition during the year was \$35.79 per thousand, as compared with \$24.32 per thousand for the preceding fiscal year. There was, however, an increase in the cost of materials, per thousand cartridges, of \$8.41, as compared with the cost of the same materials for the fiscal year 1916. The cost of blank cartridges, caliber .30, was \$16.80 per thousand, as compared with \$12.81 for the preceding year, but much of this increase is due to the increased cost of materials, which amounted to \$2.53 per thousand rounds.

Manufacture of instruments.—The principal output of sights, instruments, etc., for the fiscal year 1917 was: One hundred and sixty-one front sights for field-gun carriages; 2 fire-commander's spotting boards; 178 hand fuze setters, model of 1912; 177 hand fuze setters, model of 1913; 26 110-degree plotting boards; 5 mortar plotting boards, model of 1906; 225 panoramic sights, model of 1915; 400 periscopes; 1 sight for 4.7-inch gun carriage; 1 sight, model of 1912, for mountain howitzer carriage; 1 sight for 6-inch howitzer carriage; 5 elevation quadrants, model of 1906. The design of the model of 1917 panoramic sight has been developed, and several samples have been made. The design has been accepted for future manufacture. This model was designed to incorporate the valuable features of the older sights, to overcome their defects, and to produce a thoroughly modern instrument which could be manufactured in quantity; 800 of these sights are now under manufacture. The design for a panoramic sight for the 16-inch howitzer railway mount has also been developed, and one sight is now being manufactured. The cost of sights, instruments, etc., manufactured at this arsenal during the fiscal year 1917, as compared with the cost prior to the introduction of improved shop management, shows a loss of \$778.23, which may be attributed almost entirely to the increased cost of material and, to a certain extent, to the increased cost of labor.

The system of inspection has been the same as during the preceding year, and the quality of the product has been maintained at the same high standard. The largely increased demand for tools, gauges, etc., from the artillery ammunition department and from the inspec-

tors at outside plants, which were necessarily purchased and inspected at this arsenal, has greatly increased the work of the inspecting force, but this increase has been handled in a very satisfactory manner.

Manufacture of Artillery ammunition.—The principal output of Artillery ammunition during the fiscal year was as follows: 3,104 fixed common steel shell for 2.95-inch mountain gun; 3,000 fixed common shrapnel for 2.95-inch mountain gun; 1,308 fixed steel shot for 2.95-inch subcaliber gun; 164,247 fixed common steel shell for 3-inch field gun; 153,826 fixed common shrapnel for 3-inch field gun; 2,980 fixed high explosive shrapnel for 3-inch field gun; 510 fixed steel shot for 3-inch (15-pounder) gun, seacoast; 5,648 unfixed common steel shell for 3.8-inch howitzer; 7,300 unfixed common shrapnel for 3.8-inch howitzer; 12,932 unfixed common steel shell for 4.7-inch howitzer; 2,529 unfixed common shrapnel for 4.7-inch howitzer; 4,236 fixed common steel shell for 4.7-inch gun; 2,586 fixed common shrapnel for 4.7-inch gun; 7,259 unfixed common steel shell for 6-inch howitzer; and 600 unfixed common shrapnel for 6-inch howitzer. There were also completed 20,000 21-second combination fuzes, model of 1907-M, for the Navy; 1,662 minor caliber base detonating fuzes; 105,649 medium caliber base detonating fuzes; 4,084 major caliber base detonating fuzes. The manufacture of Artillery ammunition during the year shows a saving in cost, as compared with the cost prior to the introduction of improved shop management, of \$455,971.25; although the cost of material and labor was greater than during the preceding year. The actual saving made in the cost of Artillery ammunition, as compared with the preceding year, was \$23,446.02.

The quality of the combination fuzes manufactured during the past year has not been quite as satisfactory as that of previous output, which, to a great extent, may be attributed to lack of proper space and lack of production engineers having a competent knowledge of fuze manufacture. The first-mentioned difficulty will be corrected upon the completion of the new fuze shop, now in course of erection, and the second difficulty is now in process of correction. The manufacture of base detonating fuzes with nondelay action type of primer has been exceptionally satisfactory, but the same fuze with a delay-action primer has been more difficult to assemble, and manufacture of the delay-action primer has been stopped pending solution of the difficulty.

The production of rifle and hand grenades has been unsatisfactory during the past year, owing to the difficulty of securing components from the contractors, as well as the lack of a proper loading shop. Separate space has, however, now been set aside for this purpose, and the organization of the shop is now in progress.

Experiments have been conducted to perfect a satisfactory night tracer; it is believed that manufacture may shortly be undertaken.

Advance in cost of labor and material.—The cost of material and the wages of employees have continued to advance during the year, but the increase in cost of material has been general, instead of extreme advances on certain materials, as was the case during the past fiscal year.

WATERVLIET ARSENAL.

This arsenal was commanded during the year by Col. W. W. Gibson, who is also a member of the Board for Testing Rifled Cannon.

Operating department.—The gun-manufacturing plant was operated during the year on about the same basis as that stated in my previous report, until February, 1917. At that time, due to the national emergency, the working hours were changed from three 8-hour shifts to two 10-hour shifts, and the gradual expansion of the working forces undertaken. On June 30 approximately 75 per cent of the machinists were employed on the first shift and 25 per cent on the second shift. The following is a summary of the important items completed: For the Army—three 14-inch guns, ninety-three 3-inch field guns, one 3-inch (15-pounder) gun; thirteen 4.7-inch guns; and eight 4.7-inch howitzers; for the Navy—three 6-inch guns, twenty 5-inch guns, and twenty-six 4-inch guns. There remain under manufacture 13 large-caliber guns and 508 minor-caliber guns.

Number of employees.—On June 30, 1916, the employees of this arsenal numbered 422. This number remained approximately constant until February, 1917, when a gradual expansion of forces was undertaken. On June 30, 1917, the number of employees was 670, an increase of 249.

New machine tools.—These installations have greatly reduced the cost of manufacture of a number of parts, in some cases as much as 200 per cent. A number of new machines suitable for the manufacture of 3-inch field guns and 3-inch antiaircraft guns have been installed in the field and siege gun department with which it is estimated the production of mobile artillery can be increased to fifty 3-inch field guns and ten antiaircraft guns per month by January 1, 1918. A 120-inch gun lathe, of capacity sufficient to accommodate an 18-inch 45-caliber gun, has been ordered but has not yet been received.

Planning room.—The system of keeping record of the time required to perform different operations has been found to be very satisfactory and of considerable value. It is being extended to all of the manufacturing work, and it is expected that it will be a considerable factor in the reduction of manufacturing costs. The system of merit or demerit placed against workmen for good or poor work has been discontinued, as it failed to give good results. In view of the small number of parts which this arsenal is called upon to manufacture, the preparation and use of instruction sheets has been discontinued.

Cost of manufacture.—The cost of manufacturing orders completed during year shows, in general, a downward tendency. Considering the unit cost for direct labor as the most satisfactory basis for comparison and taking a few items of which the numbers manufactured are sufficiently near those manufactured in previous years to permit a fair comparison, it may be stated that sixty-two 3-inch field guns, model of 1905, were completed in the year 1916 at a direct labor cost of \$455.71 per gun, and an order for ninety-one 3-inch field guns, model of 1905, was completed in the year 1917, at a direct labor cost of \$317.01 per gun; two orders, each for fifteen 4.7-inch howitzers, model of 1912, completed in the year 1916, show a direct labor cost

per howitzer of \$573.22 and \$536, respectively, as compared with \$481.16 per howitzer for an order of eight completed in the year 1917. An order for ten 4.7-inch guns, model of 1906, completed in the year 1916, show a direct labor cost of \$726.64 per gun, as compared with \$625.54 per gun for an order of twelve completed in 1917. Similar comparisons of costs of minor parts give generally gratifying results. It is to be noted, however, that uniformity in costs can not be expected as long as manufacturing orders vary widely as to quantity.

Gun shop improvements.—The extensions of the west aisle and south end of the large gun shop are well along toward completion. The new recreation and toilet rooms have been completed. The work of raising the roof of the gun shop, over the shrinkage pit, has been commenced.

WATERTOWN ARSENAL.

This arsenal was commanded until March 3, 1917, by Col. Charles B. Wheeler, and since that date by Lieut. Col. T. C. Dickson. The commanding officer of the arsenal is also armament officer of the Northern Armament District and, since May 1, 1917, ordnance officer of the Northeastern Department.

The principal operations have consisted in the manufacture of carriages for seacoast guns, armor-piercing and deck-piercing projectiles, and parts required for the alternation and repair of seacoast carriages already in service. The total number of employees at the beginning of the fiscal year was 615; there were 853 employees on the rolls on March 26, on which date the plant was put on a war basis with two shifts, each working 10 hours. The total number of employees at the end of the fiscal year was 1,246.

Principal output.—The following seacoast projectiles were completed during the year: 395 6-inch armor-piercing shell and 1,050 12-inch deck-piercing shell, 700-pound. Field Artillery projectiles were completed as follows: 930 4.7-inch common shrapnel cases, 9,028 4.7-inch common steel shell, and 228 6-inch common steel shell. The following carriages for seacoast guns were completed during the year: Four 14-inch disappearing carriages, model of 1917; one 12-inch barbette carriage, model of 1917; two 4.7-inch howitzer railway mounts; one 3-inch antiaircraft mount, model of 1917; 74 sets of parts for increasing limits of elevation of gun on 12-inch disappearing carriages, models of 1896, 1897, and 1901 in service; and 18 sets of parts for kick-down buffer mechanisms for 14-inch disappearing carriages, model of 1907 and 1907 M₁ in service. The foundry produced the following quantities of cleaned castings during the year: 2,784 tons of nickel-chrome steel, 1,272 tons of steel, 1½ tons of high-speed tool steel, 303 tons of iron, 139 tons of bronze, six-tenths of a ton of aluminum and lead, and 6 tons of copper. The average output per month for the first nine months of the year was 327 tons; for the last three months, 781 tons.

Testing laboratory.—The operation of the open-hearth furnace materially increased the work of the testing laboratory. The total number of specimens tested was 5,953, as compared with 5,914 during the preceding year, an increase of 2.3 per cent. The total number of chemical analyses made was 2,337, as compared with 1,055 during

the preceding year, an increase of 121 per cent. Among the important investigations undertaken were the determination of the efficiency of different methods of attaching caps to armor-piercing projectiles, and the effect on the physical properties of steel wire used in wrapping guns when the guns are brought to a sufficiently high temperature to permit removal and insertion of lining tubes.

Improvements.—Funds have been appropriated for a new foundry, storehouse, planning room, inspector's office, garage, erecting shop, addition to the projectile shop, addition to the power plant, enlargement of coal pocket, and installation of coal conveying apparatus, and for tunnels connecting the new erecting shop, the projectile shop, the press shop, the smith shop, the machine shop, and the present foundry with the power plant, and these improvements will be pushed to an early completion.

NEW YORK ARSENAL.

This arsenal was commanded during the year by Col. O. B. Mitcham, who also performed the duties of inspector of ordnance, ordnance officer of the Eastern Department, and armament officer of the Central Armament District.

The arsenal has no special facilities for the manufacture of repair of ordnance matériel; its principal use is as a purchasing, receiving, and shipping depot. From its proximity to New York City its advantages as a purchasing and storage depot are manifest. As a depot for equipping troops, especially for military expeditions in time of war, its location renders it particularly valuable. There is over \$5,000,000 worth of ordnance material under manufacture at various private establishments in the vicinity of New York City, the inspection of which is under the supervision of this arsenal.

During the year 34,529 packages of stores were received, weighing 3,554,569 pounds. The amount of funds disbursed during the year was \$477,900.25.

AUGUSTA ARSENAL.

This arsenal was commanded during the year by Col. J. W. Benet, who is also armament officer of the Southern Armament District.

The shops have been employed in the manufacture of cast-iron projectiles for target practice, cast in the arsenal foundry; the manufacture of targets for seacoast target practice; and in repair and alteration work for the Southern Armament District.

The disbursements for the year, exclusive of sales and deposits, amounted to \$98,500.48. The number of receipts and issues of ordnance stores during the year was 1,680. The stores received on quartermaster's bills of lading aggregated 2,024,584 pounds; the stores issued on quartermaster's bills of lading aggregated 3,354,914 pounds.

This arsenal will be the depot of supply for the 12 camps to be established in the Southeastern Department, which will require the present storage capacity of the arsenal to be practically doubled, either by the erection of additional storehouses or by renting suitable buildings in the city of Augusta.

BENICIA ARSENAL.

This arsenal was commanded throughout the year by Lieut. Col. H. W. Schull, who is also ordnance officer of the Western Department and armament officer of the Western Armament District.

This arsenal is the depot of supply for troops of the Regular Army and the National Guard in the Western, and, to a certain extent, for the Hawaiian Department, and it is the depot of reserve for Ordnance Supply District No. 5. The arsenal has shops well equipped for all the usual repairs and for certain manufactures. During the year the shops have been engaged principally in the manufacture of cast-iron projectiles for 12-inch mortars, of target material for seacoast and mobile artillery, and small-arms target practice, of cartridge bags and cartridges for seacoast cannon, and upon the usual miscellaneous repairs and alterations of seacoast armament. In addition, the small-arms repair shop has overhauled and repaired approximately 2,900 United States rifles, caliber .30, model of 1903. A large quantity of personal and horse equipments, turned in by the service for the purpose, has been cleaned and repaired. During the last half of the year work in all sections of the arsenal steadily increased, due to the expansion of the Regular Army, the calling into the service of the National Guard, and the establishment of training camps in the Western Department. On June 30, 1917, the clerical force was more than 55 per cent greater than at the beginning of the year, and the total number of employees on the pay roll was nearly double what it was in December, 1916.

During the year the new storehouse, for which an appropriation was made by Congress, was completed, which affords a certain measure of relief from the congested conditions heretofore existing; additional storage facilities will be required, however, to accommodate the material and equipment which must be kept on hand at this arsenal. Additional facilities for fire protection have been provided by the installation of a motor-driven centrifugal pump with a capacity of 1,000 gallons per minute. Much-needed additional machinery has been installed in the machine shop and carpenter shop.

The total disbursements for the year amounted to \$209,955.97, of which approximately \$40,000 was for manufactures, \$20,000 for cleaning and repairing arms and equipment, and \$40,000 for maintenance of armament. During the year 482 requisitions were received, and 1,715 invoices and 876 bills of lading were drawn to cover issues. The stores received aggregated 7,860,532 pounds; those shipped, 4,870,668 pounds.

SAN ANTONIO ARSENAL.

This arsenal was commanded during the year by Maj. Harry B. Jordan. The commanding officer is charged with the maintenance, repair, and alteration of Field Artillery matériel in the Southern Department, and in addition performed the duties of ordnance officer of that department from February 28, 1917, to the close of the year.

The work of this arsenal consisted of issues to depots and troops; repairs to Field Artillery matériel, small arms, machine-gun equipment, and personal and horse equipment; and the inspection of

Artillery and machine-gun organizations. The troops stationed in the Southern Department on June 30, 1917, dependent upon this arsenal as a source of supply, were as follows: 9½ regiments of Cavalry, 14 regiments of Infantry, 12½ regiments of Artillery, and 8 aero squadrons. Six divisional camps are to be located in the Southern Department and will be supplied from this arsenal.

The principal improvements during the year are the construction of the basement and first floor of storehouse "C," the erection of cantonment buildings for National Guard troops, and the erection of a barrack building for the accommodation of enlisted men of the Ordnance Reserve Corps, who are to be sent to this arsenal for instruction. Ordnance repair trucks have been located with headquarters at Fort Brown, San Antonio Arsenal, Fort Bliss, and at Fort Douglas. Each truck is equipped with a light sewing machine for cloth work, a supply of material for cloth and leather repairs, and parts for repairs of rifles and machine guns; an armorer, a saddler, and a chauffeur are attached to each truck. The trucks travel from place to place repairing equipment in the hands of troops.

The total weight of stores shipped from this arsenal during the past year was 14,948,386 pounds; of stores received, 15,384,169 pounds. The total expenditures amounted to \$285,973.54. These figures show an increase of about 350 per cent in the quantity of stores handled and almost 600 per cent in the amount of funds expended, as compared with the activities of this arsenal during the preceding year.

FICATINNY ARSENAL.

This arsenal was commanded by Lieut. Col. J. W. Joyes until May 27, 1917, and since that date by Lieut. Col. J. C. Nicholls. The Army powder factory and the high-explosive factory are located at this arsenal, which is also a depot for the storage and preparation of powder, ammunition, and high explosives. Approximately 1,679,075 pounds of cannon powder, 782,300 pounds of caliber .30 powder, and 159,900 pounds of high explosives were manufactured during the year, which are considerable increases over the corresponding amounts produced in the preceding year; the output of caliber .30 powder was more than doubled. During the year about 32,000 propelling charges for cannon were assembled or modified, and about 1,000 projectiles modified. A large amount of experimental work was conducted relating to powders and explosives.

Due to the increased costs of material and labor the costs of powder have been increased. The cost of cannon powder for the year 1917 was \$0.48 per pound, as compared with \$0.39 per pound for the preceding year. Similarly the cost of caliber .30 powder has increased from \$0.46 to \$0.62 per pound. These are factory costs, including certain overhead charges only. There have recently been marked increases in the cost of alcohol and fuming sulphuric acid. Nearly 6,000,000 pounds of cannon powder and 1,650,000 pounds of caliber .30 powder have been manufactured since the factory has been in operation. The operation of the plant for the production of high explosives has been satisfactory. The factory has been

rounded out so as to have a capacity of approximately 11,000 pounds of powder per day of 24 hours.

The total disbursements during the year amounted to \$1,786,975.88; the number of cash vouchers was 2,453; the number of receipts and issues of stores was 1,570; the weight of stores received and issued, 46,651,148 pounds, exclusive of about 40,000,000 pounds for use in manufacturing and building purposes, etc. The number of employees on June 30, 1917, was 884, more than double the number employed at the beginning of the year.

MANILA ORDNANCE DEPOT.

The depot was commanded by Lieut. Col. Samuel Hof throughout the year. The commanding officer is also armament officer of the Philippine Armament District and ordnance officer of the Philippine Department.

Volume of business.—Eight hundred and fifty-three ordnance property returns were received and given preliminary examination, all irregularities being investigated by correspondence. The number of vouchers for stores issued was 2,326, and for stores received 1,070. The weight of stores issued aggregated 2,741,118 pounds; that of stores received, 4,404,165 pounds.

Disbursements.—The total amount of funds disbursed at the depot during the year was \$132,187. The sales of ordnance and ordnance stores during the year to officers, the insular government, and other departments amounted to \$37,417.64.

Work at the depot.—The work of the past year has included the repairing of a large quantity of matériel turned in for that purpose; the preparation of propelling charges for seacoast guns; the manufacture of targets and target material for small arms, mobile and seacoast target practice; and of miscellaneous stores for sale and issue. The installation and care of seacoast armament have added largely to the labor and responsibility of the depot. Increased storage facilities and more efficient fire protection are its most immediate needs.

HAWAIIAN ORDNANCE DEPOT.

This depot was commanded during the year by Maj. Charles G. Mettler, who is also ordnance officer of the Hawaiian Department and armament officer of the Hawaiian Armament District. In addition to supplying the troops stationed in the Hawaiian Department and maintaining the armament, a new depot, consisting of storehouses, magazines, stables, quarters, etc., has been planned and partly completed. During the year the depot has overhauled a large quantity of small-arms ammunition; made extensive repairs on seacoast armament; overhauled and placed in serviceable condition practically all of the machine guns in the islands; and modified, tested, and accepted the motor transportation for the Ninth Field Artillery.

The disbursements during the year amounted to \$54,402.82; the aggregate weight of stores received was 475,103 pounds; that of stores issued, 1,261,566 pounds.

PANAMA ORDNANCE DEPOT.

The depot was commanded by Maj. Charles B. Gatewood, who is also armament officer of the Panama Armament District. Funds for the establishment of the depot were appropriated September 8, 1916, and contemplated the construction of magazines, storehouses, barracks, shops and office buildings, quarters for officers, noncommissioned officers, and civilian employees, etc. Work on these constructions was promptly inaugurated and the various buildings are in a more or less advanced state of completion. Estimates are pending for the additional constructions required. The number of vouchers for stores issued during the year was 209; for stores received, 189. The amount of funds disbursed by the depot was \$3,013.36; by the paymaster of the Canal Zone from appropriations pertaining to the depot, \$19,087.41; and by transfer of funds by the office of the Chief of Ordnance, through the Treasury, \$186,938.64, a total of \$209,039.64.

With a few exceptions all of the contemplated armament for the Canal Zone has been installed. The troubles heretofore developed in the proof firing of 12-inch mortar carriages appear to have been wholly overcome, and all mortars are now in service. The more important alterations completed during the year were the modification of mortar trays, the fitting of bronze shoes to breechblocks of guns and mortars, alteration of chambers of 14-inch guns, and the addition of kick-down buffers to 14-inch disappearing carriages. The experienced mechanics required for this work were nearly all obtained from ordnance establishments in continental United States.

ORDNANCE BOARD.

The membership of the board on June 30, 1917, was as follows: Col. C. L'H Ruggles, Ordnance Department; Col. D. W. Ketcham, Coast Artillery Corps; and Col. G. G. Gatley, Fifteenth Field Artillery. Capt. Thomas M. Robbins, Corps of Engineers, is a member of the board on engineering matters.

The board, which is a permanent experimental body, submitted during the year 13 reports relating to guns and carriages, 23 relating to smokeless powder and explosives, 16 relating to fuzes and primers, 20 relating to projectiles, and 29 relating to sights, fire-control instruments, and miscellaneous material.

Very respectfully,

WILLIAM CROZIER,
Major General, Chief of Ordnance.

The SECRETARY OF WAR.

REPORT OF THE CHIEF SIGNAL OFFICER.

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REPORT OF THE CHIEF SIGNAL OFFICER.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Washington, October 17, 1917.

SIR: The following report of the operations of the Signal Corps during the fiscal year 1917 is submitted in the absence on duty of Maj. Gen. George O. Squier, who has been Chief Signal Officer of the Army since February 14, 1917, when his predecessor, Brig. Gen. George P. Scriven, was retired from active duty at his own request, after a long and distinguished service in the Signal Corps.

The work of the Signal Corps has included the development of the Army's air program, the installation, operation, and maintenance of military telegraph and telephone systems, and radio ship and shore stations, the installation and maintenance of annunciator-buzzer and other target-range communication systems, the supply of the signal-unit accountability equipment to the several components of the Army, and the supply of material for the maintenance of fire-control systems and radio and signal stations of coast defenses.

At the commencement of the fiscal year 1917 the Mexican border mobilization was in progress. The Signal Corps met its requirements for that additional work with some difficulty. After some months the situation was relieved by an appropriation for the air service, about 10 times as great as the total amount appropriated for such service during the preceding 4 years. Other Signal Corps appropriations and the personnel were also measurably increased. Additional increase in personnel through the Reserve Corps was also authorized and the corps given authority to proceed with the organization of units and the purchase of equipment to meet existing needs.

Immediately upon obtaining the required authority, the corps entered into close cooperation with other departments of the Government, with the telegraph and telephone companies, with manufacturers of electrical apparatus, with our educational institutions, and many other interests, and in this manner secured as commissioned subordinates of the Chief Signal Officer, for use during any emergency, officials of the highest prominence and ability, and also obtained through that policy a personnel of reserve officers and enlisted men already possessing the required technical training for the new reserve field and telegraph battalions.

At the same time a matériel program, based upon the then existing governmental requirements and manufacturing conditions of the country, was arranged.

As a result of the foregoing action, the Signal Corps had at its disposal at the outbreak of the present war the nucleus of its war personnel and complete information as to the possibilities of the matériel market, and with the assistance of the National Advisory Committee for Aeronautics, the National Research Council, and the Council of National Defense, immediately acted to meet the emergency. Conditions made necessary a special air program. Congress approved of the air program and the bill was signed by the President July 24, 1917.

Conditions prohibit the publication of details showing the program in personnel and matériel, but it is gratifying to be able to report that the corps is ahead of schedule in all its work.

To meet the situation enormous increases in all activities of the Signal Corps were required. Following is a statement of the Government boards directly associated with the office of the Chief Signal Officer, the several divisions necessarily established in that office to meet existing conditions, and a general statement of the duties of each.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS.

This committee, authorized by act of Congress approved March 3, 1915, to supervise and direct the scientific study of the problems of flying with a view to their practical solution, to determine the problems which should be experimentally attacked, and to discuss their solution and their application to practical matters, includes representatives of the War and Navy Departments and the Departments of the Treasury, Agriculture, and Commerce, and the Smithsonian Institute. It has rendered valuable aid and advice in all aviation matters under consideration.

COUNCIL OF NATIONAL DEFENSE—AIRCRAFT PRODUCTION BOARD.

This board was established by resolution of the Council of National Defense of May 16, 1917, to consider matters relating to the quantity production of aircraft in the United States and to cooperate with the Army and Navy in furthering their air programs. In its advisory capacity the board has rendered invaluable aid to the Signal Corps.

Joint Army and Navy boards on aeronautical cognizance, design and specifications, Zeppelins, and on technical aircraft were created and have insured the desired cooperation between the War and Navy Departments.

OFFICE OF THE CHIEF SIGNAL OFFICER.

ADMINISTRATION DIVISION.

The Administration Division is charged with the coordination of the work of the other divisions of the office.

Recognizing the fact that without perfect teamwork among the different arms of the service no army can accomplish the end for

which it exists—that is, the winning of battles—and with the knowledge that without large numbers of highly trained signal troops such teamwork is an impossibility, the Signal Corps is making the training of its new personnel a matter of the first importance and is impressing upon it the necessity for cooperation with all other branches of the service.

The Reserve Corps.—The national-defense act of June 3, 1916, authorizing the Reserve Corps, has been utilized effectively by the Signal Corps in order to supplement its limited personnel of officers and enlisted men. At the outbreak of the war representatives of the great systems of electrical communication in the United States made applications for commissions in the Signal Reserve Corps. Their knowledge and experience were placed at the disposal of the Government.

As a result of this policy it was possible through these officers to secure trained personnel as officers and enlisted men for the new field and telegraph battalions. While the personnel for these organizations was obtained almost exclusively from the commercial service, the country's telephone and telegraph systems have not been disorganized. This result was possible of achievement only because of the cooperation between the Signal Corps and the companies whose men were required for military service.

In the same manner the production and acquisition of technical apparatus for systems of field lines has been made possible.

In the solution of the many problems involved in the development of the aviation service of the Army, the Signal Corps also had at its disposal in the Signal Reserve Corps many of the most prominent engineers, scientists, and business men in the United States.

AIR DIVISION.

This division of the office of the Chief Signal Officer of the Army has general supervision over all matters pertaining to aviation. To develop the new air program of the Army it was necessary to entirely reorganize this division. Its personnel has been enormously increased. It handles all matters of design and development of airplanes; the selection, training, and commissioning of the officers of the aviation section; the recruiting and organizing of its enlisted personnel for duty at home and abroad; the training of aviators and the conduct and operation of aviation schools and stations.

The following table shows the sums appropriated for Army aviation purposes:

1912.....	\$125, 000
1913.....	100, 000
1914.....	125, 000
1915.....	250, 000
1916.....	300, 000
1916-17, urgent deficiency	500, 000
1917.....	13, 281, 666
1917-18, urgent deficiency	43, 450, 000

A glance at the above table shows that prior to March 31, 1916, when the urgent deficiency appropriation for the year 1916-17 be-

came available, but \$900,000 had been appropriated for aviation purposes over a period of five years.

On July 1, 1916, 23 officers of the Regular Army had completed their training in aviation and were serving on duty with the aviation section of the Signal Corps. Twenty-six other officers were under instruction. A small number of firms were making airplanes or airplane engines. With one or more exceptions practically none of these were producing more than an occasional machine, and most of the product had been contracted for by foreign Governments. Five officers were in Washington charged with the duty of overseeing the expansion of the aviation section of the Signal Corps.

The problem of the fiscal year 1918, therefore, was the problem of preparing a general plan of development, of securing the cooperation of the aeronautic industry and insuring its expansion, and of solving the innumerable scientific and engineering problems which must be met to send men and machines into the air to reconnoiter and to fight over unmapped country.

Many weeks were required to remove the obstacles in the way of obtaining suitable airplanes and airplane engines in large quantities.

Specifications of various types of machines were prepared by a board of technically trained officers assisted by consulting engineers from civil life; the facilities of the Bureau of Standards were used for the testing of various materials; and devices of all sorts which might increase the military efficiency of the aviator received trial.

The money provided by Congress for the purchase of a site for an aeronautical experimental station was used in the purchase of Langley Field at Hampton, Va. This site, ideal for both land and water flying, was selected after a thorough canvass of available tracts. The necessity for such a station became more and more evident as Army aviation developed throughout the year. The wisdom of separating experimental stations from fields where pupils were under instruction in flying was brought home forcibly with the expansion of the training program.

The national-defense act of June 3, 1916, authorizing the organization of an Officers' Reserve Corps and an Enlisted Reserve Corps was made the basis for training a reserve civilian personnel of flyers and mechanics, and a system of instruction was adopted which, with amplification and modification, is forming the basis of the instruction of war pilots.

When, in April, the United States entered the European war the Chief Signal Officer availed himself of the offers of a number of civilian experts, scientists, engineers, and business men of achievement to assist him by advice in meeting the problems of expansion which confronted the Aviation Service. Representatives of other Governments at war were also consulted and, as a response, experts in every line of aeronautical work, airplanes and engines, photography, fighting in the air, radio and meteorology, men trained in the school of the European war were sent to Washington so that the combined experiences of three nations represented by about 30 officers and men became available to assist in finding a solution of the problems confronting the United States.

Although training machines could be obtained, the war airplane with its refinements of construction and its engine of unprecedented

efficiency was practically unobtainable in the United States in April. The Liberty engine, which for power, lightness, and efficiency compares favorably with the best European types, was under development in June.

By the end of June, 1917, the number of Regular Army officers trained and detailed to aviation duty had been increased from 23 to 92, and in addition 54 civilians had qualified for commissions in flying capacities in the Signal Reserve Corps. The system of training civilians for commissions had been amplified by the organization of eight schools of military aeronautics, where prospective officers could receive schooling in military discipline, the principles of airplane and engine construction and operation, radiotelegraphy, photography, bombs and bomb dropping, and aerial observation, and at the close of the fiscal year many student officers were under instruction.

The program of action made possible by the congressional appropriation that became available July 24, 1917, had been practically mapped out before the end of the fiscal year.

LAND DIVISION.

This division has general supervision over all matters of the Signal Corps pertaining to the land section. The duties of this division are to develop the plans of all organizations and units of the land section and to assemble, transfer, and assign to stations and organizations officers and enlisted men of the Signal Corps of the Regular Army and the Signal Reserve Corps; to handle all details in connection with the commissioning and enlisting of men in the Signal Reserve Corps exclusive of the aviation section thereof; the establishment and supervision of schools for training its personnel in their military duties; and the assembling of personnel in connection with the inspection and research work of this branch of the Army. Its duties range from the practical use of the most delicate of electrical means of transmitting information to the training of carrier pigeons.

EQUIPMENT DIVISION.

The fiscal year 1917 has shown an abnormal expansion of the work of the equipment division, due to the declaration of war. Many problems of supply and finance have arisen. The formation of many new organizations and the increase in the allowance for such organizations has made it necessary for the corps to secure enormous quantities of mobile army equipment.

Standardization in the types and production of airplanes and airplane engines was initiated with cooperation of the manufacturing industries of the country. This has involved the reconstruction of factories, in most cases the installation of entirely new equipment and the development of a new organization.

The following shows the disbursements from Signal Corps appropriations during the fiscal year 1917:

Appropriation.	Amount.	Disbursements.	Balance unexpended.
Signal Service of the Army, 1916-17.....	\$250,000.00	\$250,000.00	-----
Signal Service of the Army, 1917.....	9,781,766.00	9,781,766.00	-----
Signal Service of the Army, 1917-18, act June 15, 1917.....	47,267,766.00	23,504,470.75	\$23,763,295.25
Signal Service of the Army (no year).....	4,500,000.00		4,500,000.00
Aviation, seacoast defenses.....	3,600,000.00	2,720,589.02	879,410.98
Aviation, seacoast defenses, insular possessions (Hawaii).....	600,000.00	161,322.08	438,677.92
Aviation, seacoast defenses, insular possessions (Philippines).....	600,000.00	21,889.64	578,110.36
Aviation, seacoast defenses, Panama Canal.....	500,000.00		500,000.00
Maintenance, etc., fire-control installations at seacoast defenses.....	136,792.56	135,053.13	1,739.43
Maintenance, etc., fire-control installations at seacoast defenses, Panama Canal.....	10,000.00	9,349.22	650.68
Maintenance, etc., fire-control installations at seacoast defenses, insular possessions.....	10,653.92	10,647.24	6.68
Washington-Alaska Military Cable & Telegraph System, 1917-18.....	50,000.00	50,000.00	-----
Radio installations on Mexican border, 1916-17.....	60,000.00	60,000.00	-----
Commercial telephone service at Coast Artillery posts, 1917.....	8,500.00	8,500.00	-----

The following shows the disbursements from allotments to the Signal Corps during the fiscal year 1917:

Appropriation.	Amount.	Disbursements.	Balance unexpended.
Fire-control installations.....	\$404,434.69	\$378,536.31	\$25,898.38
Board of Ordnance and Fortification.....	25,891.69	263.70	25,627.99
Equipment of Coast Artillery armories, Organized Militia.....	699.75	699.75	-----
Field Artillery for Organized Militia, 1915-1917.....	11,588.47	11,588.47	-----
Arms, uniforms, equipment, etc., for field service, National Guard, 1917.....	342,227.00	342,227.00	-----

CONSTRUCTION DIVISION.

The construction division was created on May 21, 1917, to prepare and maintain flying fields and for the construction, maintenance, and repair of both the permanent and temporary buildings required by the Signal Corps.

Prior to this time the needs of special buildings for the training of aviators, for the assembly and repair of planes, had been recognized and studied in connection with French and English officers in Washington, but more particularly in connection with the Royal Flying Corps unit at Toronto and Camp Borden, Canada.

A board of officers was detailed to make a trip through the Central West and succeeded in locating several suitable aviation fields. The sites were selected with care, and throughout the month of June thousands of laborers were at work clearing and leveling the miles of country and erecting the hangars, barracks, workshops, and other necessary buildings. At the end of the fiscal year the construction work was well under way and gave promise of early completion. Each of these schools can train 150 pupils at a time; some of them nearly twice that number.

RADIO DIVISION.

With the enormous expansion that is taking place in the Army, the importance of radiotelegraphy has greatly increased. This division of the office was created to handle the development of new types of radio equipment for the Army, the production of the adopted apparatus, and to supervise all established systems of radio communication.

PHOTOGRAPHIC DIVISION.

The photographic division is charged with all matters pertaining to photographic work of the Signal Corps. It provides instruments and necessary photographic equipment for making still, moving, and aerial pictures for the War Department and the Army in the field. The personnel includes officers and enlisted men skilled in all branches of photographic work and furnishes photographic flight observers to the aviation section.

WASHINGTON-ALASKA MILITARY CABLE AND TELEGRAPH SYSTEM.

Communication over the Alaskan cables was interrupted on 10 occasions during the year; but 4 were actual breaks, the other interruptions being the result of tests, removing faults, or shifting of cables. All cables are in better condition than they have been for years. Acknowledgment is made of the assistance rendered by the Naval Radio Service during these interruptions.

No land lines were abandoned and no serious interruptions occurred. Cable mileage on June 30, 1917, amounted to 2,676.7 statute miles and land lines amounted to 840 statute miles. No land reservations were made or abandoned. Two radio stations were installed, and six telegraph offices were opened and five closed during the year. "This line" receipts aggregated \$191,331, an increase of \$31,511 over the previous year. The value of Government business was \$194,194, a decrease of \$376. There were 206 enlisted men of the Signal Corps on duty in connection with the operation and maintenance of the lines on June 30, 1917. The enlisted men of the infantry on duty with the Signal Corps numbered 24.

This report, in view of the war, necessarily omits details that would illustrate the great advances made during the fiscal year 1917 in all Signal Corps activities. In closing, the Acting Chief Signal Officer desires to state that the Signal Corps, although it has much to accomplish, is confident of meeting its future requirements.

C. MCK. SALTZMAN,

Brigadier General, Acting Chief Signal Officer.

To the honorable the SECRETARY OF WAR.

REPORT OF THE CHIEF OF THE MILITIA BUREAU.

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REPORT OF THE CHIEF OF THE MILITIA BUREAU.

WAR DEPARTMENT, MILITIA BUREAU,
Washington, D. C., October 1, 1917.

SIR: This, the fifteenth annual report of the Bureau or Division in charge of militia affairs in the United States, must, for obvious reasons, be different from any that has preceded it, the National Guard, after its stages of development, having been drafted for war service.

GENERAL REMARKS.

In times past, under governing conditions, the objective of all Federal effort in behalf of organized militia in this country was naturally along the lines looking to its betterment and development, designed ultimately to make it in fact, as well as in name, a dependable and efficient part of an ever-ready national defense system. With this in view, errors and omissions from time to time were pointed out and remedial methods of improvement suggested. All criticisms, comments, or recommendations made by those charged with Federal supervision were directed in a kindly spirit toward the desired goal, namely, the improvement and proper development of the Organized Militia as an element of the national defense.

HISTORICAL SKETCH.

STATE MILITIA.

In the closing 80's effort was made by the War Department to assist the militia, by allowing portions of the Regular Army of certain large garrisons to participate in encampments with State troops.

This plan of voluntary cooperative effort, by tacit understanding between the Regular Army and the militia in certain sections, was begun and conducted for some time without any official formal sanction of either State or Federal law, and went on from year to year, on a more or less limited scale, without any officially announced pre-arranged plans of coordinated effort.

This continued up to the War with Spain in 1898. The militia at that time had no place in the Federal military establishment except in the event that it might be called forth as a constitutional instrumentality to preserve the peace locally, or nationally to resist invasion by foreign foes.

Congress, doubtless realizing that something ought to be done toward helping to place the States' militia upon a higher plane of national usefulness, broke away from time-honored traditions and restrictions and passed two separate money-giving laws—one on June 6, 1900, allotting \$1,000,000 of Federal money annually for the supply of certain articles to the States' militia, and another, the law of March 2, 1903, appropriating the lump sum of \$2,000,000 for the procurement of certain articles of armament and equipment for the militia without raising any question as to commensurate co-operative State appropriations. These two Federal laws, calculated to stimulate the State militia, constituted a most important precedent in so far as, apart from the original \$200,000 annually allowed, they were the first donations made toward the support of the States' militia, and opened the door for those more extended and more liberal donations of later years.

THE ORGANIZED MILITIA.

Up to January 21, 1903, however, it must be borne in mind that there was no Organized Militia in the United States, as we now understand the term. By whatever name the States' militia had previously been called, they were nothing more or less than local State soldiers. The militia act passed Congress January 21, 1903, and marked the beginning of new life for the active militia, which henceforth was to be officially designated "Organized Militia" of the United States.

In his report for 1903, the Secretary of War, Mr. Root, reviewing the achievements of military legislation effected that year, stated that "of equal importance with the General Staff act in its relation to the general military efficiency of the country is the act to promote the efficiency of the militia, approved January 21, 1903."

He also stated:

That as the militia when called into the service of the United States and the Volunteer forces will form, together with the Regular troops, but one Army, subject to the same command, drawing arms, ammunition, and supplies from the same source, and subject to the same general system of accountability for property, it will be important that all parts of this greater Army shall have used and shall be familiar with the same arms, ammunition, supplies, and forms and methods of transacting business, and shall have similar organization and discipline.

It was with all this in view, doubtless, that Congress passed the Dick bill of 1903, providing for the calling of a better trained and Organized Militia into the service of the United States when required for constitutional purposes. Congress, in that act, exercised its constitutional power "to provide for organizing, arming, and disciplining the militia" by a series of provisions designed to promote the strength, efficiency, and prosperity of these militia organizations; to make them, with the Regular Army, a homogeneous force.

To accomplish the ends in view, the act provided that the organization, armament, and discipline of the Organized Militia should be the same as that prescribed for the Regular Army. It authorized the Secretary of War to issue to the militia, at the expense of the National Government, the same arms, ammunition, and supplies

which are provided for the Regular Army. It provided for regular inspection by Army officers detailed by the Secretary of War and for regular returns by the adjutants general of the several States to the Secretary of War. It authorized the participation by the Organized Militia in joint maneuvers with the Regular Army, and provided that in such cases the Organized Militia so participating should receive the same pay, subsistence, and transportation as is provided by law for the officers and men of the Regular Army, to be paid out of the regular appropriations for the support of the Army. It provided also for separate State encampments of the Organized Militia by allowing, out of an annual appropriation of \$1,000,000 for militia purposes, to officers and enlisted men engaged in such encampments, the same pay, subsistence, and transportation or travel allowances as are allowed to officers and enlisted men of the Regular Army. It provided for detailing officers of the Army to attend State encampments, upon the request of the governors of the States, to give instruction and information, and for detailing officers to report to the governors as military advisers for duty generally with the militia. It provided further for the securing of a list of persons specially qualified to hold commissions in any voluntary force which might be called out.

The Secretary of War, in 1903, said:

This statute plainly opens a wide field of new duty for the officers of the Regular Army. They can no longer fill the measure of their obligation to the country by perfecting themselves and the forces under their command in the performance of their own military duties. They are charged with the further duty of applying their military skill and experience to the preparation of the militia and volunteer force, which will be associated with them in the next war, for effective service. A new responsibility also rests upon the officers of the National Guard, to render to the Nation full and unstinted return for the enlarged means and opportunities which the liberality of Congress has afforded to them.

In the 15 years that have elapsed since the passage of the militia act of 1903, there has been steady improvement in the efficiency of the Organized Militia. At times this improvement seemed slow, but the ultimate results are gratifying.

Five years after the passage of the act of 1903 an amendatory law was passed, the act of February 12, 1908. That act instituted a relationship between the States' militia and the Federal Government, by creating "a board of five officers on the active list of the Organized Militia, so selected as to secure, as far as practicable, equitable representation to all sections of the United States, and which shall, from time to time, as the Secretary of War may direct, proceed to Washington, D. C., for consultation with the Secretary of War respecting conditions, status and needs of the whole body of the Organized Militia." The members of this board were appointed for four years unless sooner relieved by the Secretary of War.

The board met from time to time and usually had present with them the head of the War Department Division of Militia Affairs, whose knowledge of militia affairs was useful to the board in considering the matters which the War Department desired to have passed upon. The board continued in existence until the passage of the national defense act, June 3, 1916, which abolished it and made provision for the attachment of two National Guard officers for duty in the newly established Militia Bureau, presided over by a general

officer under the immediate supervision of the Secretary of War, and which was to take the place of both the former Division of Militia Affairs and The Militia Board as well.

The War Department militia office grew in size and importance until 1908, when it was duly organized as a separate division in the War Department in charge of a commissioned officer of field rank. From that time on the militia business before the War Department increased so steadily that it was not long before the Division of Militia Affairs, with many added desks, was placed outside of the War Department building proper in a specially rented building of its own. Subsequently, the increase in volume of militia business steadily went on until the War Department militia office was necessarily turned into a separate and distinct bureau, whose affairs are directed by a brigadier general, an ex officio member of the General Staff of the Army, assisted by 15 commissioned officers, in rank varying from colonel to captain, and with a corps of 46 clerks.

Undoubtedly the militia act of 1903 opened up many new ways for initiative Federal action, of which it is believed the War Department took full advantage, keeping in mind at all times the policy of help and guidance of the Organized Militia along lines of improved efficiency. Prior to 1903, it must be remembered, the militia, then unorganized except in the smaller independent units, consisted of over 1,600 independent company organizations, each of which had become accustomed to recognizing no authority except that of its own immediate commander. Gradually, however, these independent units consented to be yoked together for team work in battalions, regiments, and brigades, and ultimately the plan was developed to compose them into separate tactical divisions.

THE TACTICAL DIVISIONAL PLAN.

The report of this Bureau (then known as the Division of Militia Affairs) in 1913 vigorously reviewed the importance of the tactical divisional scheme of militia organization, declaring that "until practical men with an understanding of conditions surrounding the service and maintenance of the organized militia in time of peace, with an appreciation of the magnitude of the problem of organizing and equipping citizen soldiers for war, and a realization of the absolute necessity of creating real, actual, higher organizations, are enabled to devote themselves exclusively to the work, the present divisions can never be anything more than mere paper organizations."

Under the divisional plan, it was designed to divide the country into geographical divisional districts, embracing selected States whose organized militia would naturally form a part of the tactical division contained in that divisional area.

This was the largest and most comprehensive scheme inaugurated by this bureau for the betterment of the organized militia. In order to carry it into effect, it became necessary, from an assumed point of elevation and efficiency, to look downward to imperfections existing in the smallest unit and then, counting on improvement upward, to prepare the entire militia establishment for its new responsibilities.

It was soon discovered, however, that on account of organizational defects resulting from the excessive organization of infantry (which,

being the cheapest and easiest organization to maintain, naturally was always the most popular in the States) and the lack of needed auxiliary troops, the divisional plan of organization could not be quickly perfected.

Preparation for it, however, bore excellent fruit. The governors of States, to whom the matter was submitted for examination and approval, gave their hearty cooperation to the proposed scheme. Finally, in August, 1913, Circular No. 8 was issued by the Division of Militia Affairs. This document stands next in importance to the organic Organized Militia act, and unquestionably achieved most gratifying results. In every State, more conscientious, better, and in fact, stricter compliance with the law was to be required under that circular order. And, as was pointed out in the report of 1913, unless the smaller units were properly organized, it was manifestly impossible, when those smaller units were consolidated and organized into larger ones, ever to secure a correct organization of the next higher units.

The divisional plan was finally inaugurated, and fortunately so. It was the existence of this divisional plan that made it easier for this Bureau in the past few months to prepare the National Guard of the country for call and draft into the Federal service. Indeed, without such a divisional system, if it were possible to revert to the old-time system of independent smaller units unorganized into the larger ones, it would be difficult to understand how the work that has been accomplished in the past few months could have been handled.

NATIONAL GUARD AND NEW ORGANIZATION.

To carry out the provisions of the act of Congress of June 3, 1916, the Militia Bureau was confronted with the problem of arranging for a proper scheme of organization of the existing National Guard forces of the States, including those that might be expected to exist, when the maximum of 800 men per Congressman was attained. The scheme of organization outlined in Circular 19, Division of Militia Affairs, 1914, provided for 12 divisions and took into account the National Guard organizations at that time. The National Guard was later on expanded to 14 divisions and finally, to provide for the maximum personnel obtainable under the act of June 3, 1916, to 16 divisions. It was decided to make divisional areas coincide approximately with the 16 National Army training areas, although the latter were based upon population, whereas the National Guard strength was based upon representation, as this would facilitate supply, recruitment, etc.

It was difficult enough to organize existing units into 12 divisions, as the Infantry arm predominated disproportionately, but it was infinitely more difficult to work out a scheme for 16 divisions, using all existing units and providing for the expansion to the maximum of 800 men per Congressman. The proper allotment of men to each divisional area and State was finally determined upon and published in inclosure to Circular Letter, Militia Bureau, of May 5, 1917. This inclosure, in addition, enumerated organizations that were assigned to each State and included in its existing units. This was done to enable State authorities to begin organizing, according to a definite

plan, the additional units not already in existence in their State whenever they felt able to do so, thus gradually building up the tactical divisional organization. It was likewise contemplated to raise two Cavalry divisions in addition to the Cavalry forming part of the 16 Infantry divisions, but these Cavalry divisions were not to be organized until enough Cavalry had been provided to complete 16 Infantry divisions.

The declaration of war found the National Guard still very short of auxiliary troops and strenuous efforts were made to raise them so as to complete the 16 divisions contemplated under the plan outlined above.

On August 5, 1917, there were drafted into Federal service 11,875 officers and 361,299 enlisted men, organized, as stated, into 16 National Guard divisions. Of these divisions, those of New York and Pennsylvania were complete according to Tables of Organization, 1917, that of Ohio had no Cavalry regiment but was otherwise complete. Practically all the organizations were short of war strength.

During the early part of August, the Secretary of War approved a scheme for creating a composite National Guard division composed of units from various parts of the country. This to constitute a 17th Division. This decision, in marked degree, accentuated the already existing shortage of special arms and auxiliary troops.

The active entry of the United States into the war necessitating the dispatch of troops overseas still further complicated the matter of organization of the National Guard, in that a complete reorganization had to be effected, a division under the new organization comprising the following units:

Division headquarters; machine-gun battalion (four companies); two Infantry brigades (each consisting of machine-gun battalion and 2 Infantry regiments); Field Artillery brigade (three regiments); trench mortar battery; one regiment Coast Artillery; one field signal battalion; headquarters military police; ammunition train; supply train; sanitary train; and engineer train.

This new organization and the already existing shortage in auxiliary units will naturally necessitate the conversion of many Infantry and Cavalry units into those of the special branches, a proceeding fraught with considerable difficulty.

MINOR EVENTS.

Inasmuch as this report is intended to be largely retrospective, singling out, like so many landmarks, the chief events which have contributed to the improvement of the Organized Militia of the country, reference has not been made to many of the minor details involved. The question of instruction, alone, involves enough to call for a chapter of many pages. Then, the matter of organization of auxiliary troops, of which few, if any, existed in the earlier years of militia organization, called for a great deal of attention and effort in this Bureau. Not only was attention demanded in the matter of auxiliary troops, including in particular sanitary troops, to the organization of which so little attention has been given by the State authorities, but much effort was required to create a proportionate number of Field Artillery and Cavalry, as well as Coast Artillery.

JOINT ENCAMPMENTS AND MANEUVERS.

The joint encampments and maneuvers in different parts of the country, provided for under competent War Department orders, proved a most satisfactory means of militia instruction, and likewise tended to popularize the militia to such an extent that it was found difficult to prevent men from enlisting purely for the purpose of a summer jaunt. But they brought together officers and men of the Regular Army and militia establishment, made them better acquainted with each other, and imparted especially to the militiamen opportunities for keener insight into the methods and ideals of the Regular Army than any mere theoretical course of instruction could have imparted.

FEDERAL FISCAL AID.

An examination of the records of this Bureau shows that the disbursements for the National Guard and Organized Militia from 1908 to 1917 aggregated \$37,820,465.44. This amount did not include Federal money appropriated prior to 1908 and back to 1900, when the first Federal annual appropriation of \$1,000,000 was made. There should be added, therefore, to the total amount above stated the estimated disbursements under appropriations from 1903 to 1907, inclusive—five years at \$3,000,000 per year, equaling \$15,000,000, which, added to the routine disbursements for the period above referred to, would make a grand total of routine disbursements of Federal money for and on behalf of the Organized Militia and National Guard of nearly \$53,000,000.

In considering these figures, however, the conclusion should not be reached that the amount just quoted includes all the Federal money that was expended during that period for the National Guard. On the contrary, an examination of the table showing the amount appropriated in the Army appropriation bill for the National Guard in 1917 discloses the fact that a total of \$57,685,450 was appropriated in that year alone. This last-named amount did not include the amount paid out for National Guard subsistence for those competing in national matches and other expenditures on account of both the Regular Army and the National Guard. Nor did it include the National Guard's portion of the \$11,000,000 appropriated for Regular Army transportation and supplies in 1916, nor the expenditures for the National Guard on account of travel allowances of those who were mustered in and discharged from the Federal service for adequate reasons. Neither did the amount quoted include the expenditures for the militia under a general appropriation of \$23,000,000 for military supplies.

Therefore, going back carefully into all of these items and adding to the routine cost of the National Guard the amount specifically appropriated, as well as those amounts estimated as having been appropriated, the grand total equals about \$86,000,000. Adding to this last-named amount the routine amount above referred to will make a grand total of Federal money expended for the Organized Militia and National Guard of nearly \$124,000,000.

In considering these figures, the fact must be borne in mind that unusual occurrences had developed the necessity for using a large

part of the Organized Militia and National Guard in the Federal service both on the Mexican Border in guarding railroads and other utilities and in the mobilization camps since war with the German Imperial Government has begun. Nevertheless, the prime purpose of these figures is intended to show that whereas for over 100 years the Federal Government contributed not a cent toward the maintenance of the militia in this country, recently—that is, within the present century, since 1900—most generous appropriations have been made, which would seem to have vested the United States with a supervisory right it never before had been able to claim. In other words, the States having wisely consented to accept large Federal donations, they are to be commended for the wisdom and foresight that guided the respective State authorities in coordinating and cooperating with the Federal Government in the development of a more efficient militia system in the United States.

EFFECT OF BORDER SERVICE.

The effect of border service and training is difficult to gauge for the period of service varied between wide limits. Some organizations were in service but three months, others six months, while others again remained in service continuously. The training itself was in the nature of things sadly handicapped because of the absence of any definite idea as to the duration of the entire period of service.

In spite of all handicaps, however, it must be admitted that the National Guard did learn and did improve during and on account of its border service.

DEMOBILIZATION OF 1916-17.

It is difficult to arrive at a just estimate of the effect of the demobilization on the National Guard. Having entered the Federal service with a keen desire for active service, the National Guard finally found itself scattered along the Mexican border forced to undergo a much more serious and extended course of training than any of them had ever undergone before. As a consequence, many were disappointed; complaints of "We came down here to fight; not to sit around in camp" became heard; criticism became rife; and appeals to go home were voiced. The camps were generally very comfortable, but the routine of a soldier's life, the dust storms, the marches on sandy soil, the lack of water and many of those little things that to the professional soldier are all in the day's work, grated on a large part of the National Guard. It is very probable that as a consequence many guardsmen came home completely disillusioned as to the romantic side of soldiering. That they had rendered really more valuable service to their country by preventing war than by making it, was realized perhaps by a few thoughtful ones only.

CONVENTION OF NATIONAL GUARD ASSOCIATION, NEW YORK, MARCH 27-29, 1917.

While not a part of the operations of the Militia Bureau, it seems proper to make reference to the convention of the National Guard

Association, held in New York City March 27-29, 1917. The Chief of the Militia Bureau was asked to speak on these three questions:

First. The desires of the Government as to this branch of the service.

Second. Is the National Guard worth preserving?

Third. Can the system recently established by Congress be developed so as to provide a military force worth while?

Reply was made as to the first question, "The desires of the Government," that Congress, which represents the will of the people, enacted into law the national defense act which is the guide for the War Department and the Militia Bureau in the upbuilding of the National Guard into an efficient military force, if humanly possible. And that the defense act will continue to be the guide until the people and Congress give another law to take its place.

As to the second question, "Is the National Guard worth preserving?" reply was made that when one considers that the members of the National Guard have been the only citizens who have made an organized effort to provide the Government with a military force for use in an emergency to back up the small Regular Army, the question can have but one answer as far as the personnel is concerned, they should have all praise, and the Militia Bureau has gone on record as opposing legislative effort to abolish the National Guard as a system until something better is actually substituted, and that we shall continue to insist that in any plan to create another and better force due consideration should be given to the rank and file. The statement was also made that the dual control of a Federal military force negatives at once its attaining a real efficiency for Federal military purposes.

As to the third question, "Can the system recently established by Congress be developed so as to provide a military force worth while?" it was stated that as a Federal force it will not be developed to an efficiency worth the money spent by Nation and State and the time and effort of officers and men, but it can be improved if all concerned will play the game and not continue, in many cases, to avoid the requirements of law and regulations through personal and political influence. It is a long, hard road and full of discouragement. Some localities exhibit a most commendable spirit, while others are contentious and backward. It is an expensive system to the Nation and to the individual, and entails a maximum of sacrifice on those in the community who give most freely of their time and service and mayhap soon the last full measure of devotion. It should be remembered that this means the willing ones will continue to stand in the breach and that they have no legitimate ground to criticize the man or the State which does not come in on this voluntary basis.

In the further discussion of the experience on the border, it was also stated that the National Guard which has been to the border has received more actual benefit than could have been gotten in many years' training under normal National Guard conditions, and those men are to-day a greater military asset as a reserve to the Regular Army than was furnished by the entire war with Spain.

With reference to the policy of the Militia Bureau it was stated that this Bureau continues to carry out the law, seeking a gradual development and avoiding revolutionary methods which would

thwart and kill. It adheres to published plans of organization and endeavors to build units up to a sufficient strength for effective training. There have been numerous obstacles to surmount from within and without, but, all in all, we can report good progress and an endeavor to secure proper training, a proper equipment, and the necessary funds.

These remarks were also made: "All honor to the men and officers of the National Guard. Let us get together and do some of that teamwork we so often talk about, and, whether the system changes or not, do all we are able to develop the military strength of the Nation so that we may preserve our Republic free to work out its salvation without the interference or domination of other and hostile governments."

A GLANCE INTO THE FUTURE.

As this report is being prepared, all of the organizations of the National Guard in the United States proper having been drafted into Federal service, the States are engaged in the development of some force to take its place.

A few have made provision for State militia only, avoiding obligation to the Federal Government; others are raising Home Guards, while a number are engaged in raising properly qualified National Guard under the act of June 3, 1916, to serve their present needs and to be available for Federal service if required.

LEGISLATION.

The Bureau's report for last year summarized those provisions of the act of June 3, 1916 (the national defense act), which related to the militia. The new system established by that act has been in operation approximately a year. Inevitably a considerable period of time is required for all concerned to accommodate themselves to a system so radically different in many respects from that previously existing, and the call of many organizations into Federal service, necessary as it was for the protection of our border, and valuable as it was in raising the standard of training, made the readjustment to the conditions of the new law all the more difficult and confusing. Under the circumstances it was not to be expected that any extensive changes would be made in the militia law. It is still impossible to judge the extent of the improvement that may be brought about under the national defense act.

A few minor defects, however, soon made themselves manifest, and these have been brought to the attention of Congress as they developed. One of them has already been remedied by means of a proviso contained in the Army appropriation act approved May 12, 1917. The necessity of maintaining in many States certain officers and enlisted men of staff departments, in addition to those attached to tactical organizations, was recognized by this Bureau, and the proper number of each grade in each staff department was worked out. It was held by the Judge Advocate General, however, that the law did not allow the maintenance of any Staff Corps personnel except such as is attached, according to the tables of organization, to

tactical units. This fault has now been remedied by the passage of the proviso above referred to:

That the National Guard of any State, Territory, or the District of Columbia shall include such officers and enlisted men of the Staff Corps and departments, corresponding to those of the Regular Army, as may be authorized by the Secretary of War.

This makes it possible not only to maintain the staff personnel necessary for administrative purposes in time of peace, but also to select and train that which will be required for the higher tactical units formed upon mobilization by combining the forces of two or more States.

No other measures changing our militia system were enacted during the fiscal year just closed, but several remedial provisions were made to correct unintentional hardships which had been imposed upon certain classes. Among these may be mentioned one granting pay to inspectors of small-arms practice of the Organized Militia for the time actually spent in the service of the United States in June and July, 1916, the fact that their offices went out of existence on the creation of the National Guard having deprived them of all compensation.

FEDERAL PAY FOR THE NATIONAL GUARD.

Prior to the passage of the act of Congress approved June 3, 1916, the subject of Federal pay for the National Guard had been long under discussion.

By those who advocated the measure, it was held that payment by the Federal Government would lead to increased enlistments, sharpen the interests of the members in their duties and give the officers a stronger hold on their men for disciplinary and other purposes. There was already provision of law for the payment of National Guard troops participating in encampments and maneuvers.

The act of Congress approved June 3, 1916, provided:

Pay for National Guard officers.—Certain commissioned officers on the active list belonging to organizations of the National Guard of each State, Territory, and the District of Columbia participating in the apportionment of the annual appropriation for the support of the National Guard shall receive compensation for their services, except during periods of service for which they may become lawfully entitled to the same pay as officers of corresponding grades of the Regular Army, as follows, not to include longevity pay: A captain \$500 per year and the same pay shall be paid to every officer of higher rank than that of captain, a first lieutenant \$240 per year, and a second lieutenant \$200 per year. Regulations to be prescribed by the Secretary of War shall determine the amount and character of service that must be rendered by officers to entitle them to the whole or specific parts of the maximum pay hereinbefore authorized: *Provided*, That all staff officers, aids de camp, and chaplains shall receive not to exceed one-half of the pay of a captain, except that regimental adjutants, and majors and captains in command of machine-gun companies, ambulance companies, field hospital companies, or sanitary troops shall receive the pay hereinbefore authorized for a captain.

Pay for National Guard enlisted men.—Each enlisted man on the active list belonging to an organization of the National Guard of a State, Territory, or the District of Columbia, participating in the apportionment of the annual appropriation for the support of the National Guard, shall receive compensation for his services, except during periods of service for which he may become lawfully entitled to the same pay as an enlisted man of corresponding grade in the Regular Army, at a rate equal to twenty-five per centum of the initial pay now provided by law for enlisted men of corresponding grades of the Regular Army: *Provided*, That such enlisted man shall receive the compensation herein pro-

vided if he shall have attended not less than forty-eight regular drills during any one year, and a proportionate amount for attendance upon a lesser number of such drills, not less than twenty-four; and no such enlisted man shall receive any part of said compensation except as authorized by this proviso and the three provisos next following: *Provided further*, That the compensation provided herein shall be computed for semiannual periods, beginning the first day of January and the first day of July of each year, in proportion to the number of drills attended; and no compensation shall be paid to any enlisted man for the first semiannual period of any year unless he shall have attended during said period at least twenty-four drills, but any lesser number of drills attended during said period shall be reckoned with the drills attended during the second semiannual period in computing the compensation, if any, due him for that year: *Provided further*, That when any man enters into an enlistment other than an immediate reenlistment he shall be entitled to proportional compensation for that year if during the remainder of the year he shall attend a number of drills whose ratio to twenty-four is not less than the ratio of the part of the year so served to the whole year; and when any man's enlistment shall expire the compensation, if any, to which he may be entitled shall be determined in like manner: *Provided further*, That periods of any actual military duty equivalent to the drills herein prescribed (except those periods of service for which members of the National Guard may become lawfully entitled to the same pay as officers and enlisted men of the corresponding grades in the Regular Army) may be accepted as service in lieu of such drills when so provided by the Secretary of War.

All amounts appropriated for the purpose of this and the last preceding section shall be disbursed and accounted for by the officers and agents of the Quartermaster Corps of the Army, and all disbursements under the foregoing provisions of this section shall be made as soon as practicable after the thirty-first day of December and the thirtieth day of June of each year upon pay rolls prepared and authenticated in the manner to be prescribed by the Secretary of War: *Provided*, That stoppages may be made against the compensation payable to any officer or enlisted man hereunder to cover the cost of public property lost or destroyed by and chargeable to such officer or enlisted man.

Except as otherwise specifically provided herein, no money appropriated under the provisions of this or the last preceding section shall be paid to any person not on the active list, nor to any person over sixty-four years of age, nor to any person who shall fail to qualify as to fitness for military service under such regulations as the Secretary of War shall prescribe, nor to any State, Territory, or District, or officer or enlisted man in the National Guard thereof, unless and until such State, Territory, or District provides by law that staff officers, including officers of the Pay, Inspection, Subsistence, and Medical Departments, hereafter appointed shall have had previous military experience and shall hold their positions until they shall have reached the age of sixty-four years, unless retired prior to that time by reason of resignation, disability, or for cause to be determined by a court-martial legally convened for that purpose, and that vacancies among said officers shall be filled by appointment from the officers of the militia of such State, Territory, or District: *Provided further*, That the preceding proviso shall not apply to any State, Territory, or District until sixty days next after the adjournment of the next session of its legislature held after the approval of this act.

Training of the National Guard.—Each company, troop, battery, and detachment in the National Guard shall assemble for drill and instruction, including indoor target practice, not less than forty-eight times each year, and shall, in addition thereto, participate in encampments, maneuvers, or other exercises, including outdoor target practice, at least fifteen days in training each year, including target practice, unless such company, troop, battery, or detachment shall have been excused from participation in any part thereof by the Secretary of War: *Provided*, That credit for an assembly for drill or for indoor target practice shall not be given unless the number of officers and enlisted men present for duty at such assembly shall equal or exceed a minimum to be prescribed by the President, nor unless the period of actual military duty and instruction participated in by each officer and enlisted man at each such assembly at which he shall be credited as having been present shall be of at least one and one-half hours' duration and the character of training such as may be prescribed by the Secretary of War.

Regulations respecting the submission of pay rolls, the method of determining what organizations were entitled to be paid, and the

method of determining the amount of pay due were promulgated by this bureau.

Briefly stated, these regulations required that, for companies, troops, batteries, and detachments there should be an attendance of more than 50 per cent of the authorized minimum commissioned peace strength and more than 60 per cent of the authorized minimum enlisted peace strength, or 60 per cent of the enrolled enlisted strength where such strength was above the minimum required; that each company, troop, battery or detachment should assemble for armory instruction, including indoor target practice not less than forty-eight times each calendar year and not less than 24 times each semiannual period beginning January 1 and July 1, each year; that each and every assembly should be of not less than one and one-half hours' duration; that field and staff officers and noncommissioned staff officers of combatant units should attend the same number of drills of the same duration as prescribed for their companies and exercise during such periods the functions of their office; that officers of staff departments not commanding tactical units should attend the number of assemblies for drill and of the same duration as prescribed for companies, their duties thereat to consist of appropriate practical work in administration, supply, mobilization, equipment and records and in such administrative and tactical studies and exercises as might be prescribed by the inspector-instructor in carrying out the program prescribed by the War Department.

To insure a check on the character of instruction and to enable the War Department to determine whether any particular organization had qualified for pay, commanders of organizations were required to submit monthly records of attendance at drills or assemblies for instruction.

Pay rolls were checked by this Bureau to determine whether the organization submitting the same was entitled to pay.

A considerable number of organizations failed to qualify for pay owing to an insufficient average attendance at drills and instruction, and notwithstanding the fact that many of the officers and men had been faithful in attendance, no remuneration could be granted them. A large average attendance is essential to the effective training of any organization, and this Bureau has taken the view that the expenditure of Federal funds in payment of troops was justified on no other grounds.

However, the fact that a large amount of clerical work is involved in the rendition of reports of attendance at drills and the preparation of pay rolls, and that indifference on the part of a minority of the membership of an organization can deprive those who are faithful and zealous in the performance of duty of any pay for their services, has induced this Bureau to seek some simpler and more effective mode of payment.

In the opinion of many experienced officers who have had ample opportunity to observe the effect of such training, armory drills and exercises alone add very little to the field efficiency of the National Guard soldier. Such drills can not be dispensed with, as they lay the foundation for future efficiency, but a tiresome repetition serves no useful purpose.

It is believed that it would tend to the increased efficiency of the National Guard and the contentment of the enlisted personnel were the attendance at armory drill left to the discretion of the organization commander. *The condition of the organization as to discipline, instruction, equipment, and armament as determined by the inspectors-general at the annual inspection required by section 93, act of Congress approved June 3, 1916, should then be made the basis of pay other than that for attendance at encampments and maneuvers.* The proportion of the maximum pay authorized by the National Defense Act should be from one-fourth to the whole according to the class in which the organization detachment or officer is rated by the inspector. *These inspections should preferably take place at the annual maneuvers, at which time a test of training can best be applied.*

EXAMINATION OF DRILL REPORTS.

The monthly drill reports which are submitted by company commanders to support their semiannual pay rolls are frequently returned for correction of evident omissions and errors in making. Their examination and verification involves comparison with reports of attendance made by inspector-instructors and sergeant-instructors on duty in their territory. Under the law requiring that there must be a minimum of twelve drills in each half-year period in order to entitle the organization to any pay, there was some question, during the period from July 1 to December 31, 1916, as to the proper qualification of troops, many of which had been on duty in United States service on the Mexican border. This matter was referred to the Comptroller of the Treasury, who ruled that, in case an organization had been in Federal service, a drill report was sufficient and payable that covered the time after their muster out of United States service and showed the individual men to have had a number of drills proportionate to the time in which they were actually at their home stations.

Under the present system of requirements, company commanders should submit their monthly drill reports direct to the inspector-instructor or sergeant-instructor having charge in their immediate district, for him to check with the notes made by him in visiting the different armories, and to verify the proper form of making the report; the reports could then be returned to the proper company commander, who could eliminate the errors before sending the reports forward to this Bureau for administrative examination.

In case an organization not in Federal service had no drills during any given month, the company commander should, nevertheless, be required to submit a single sheet, Form 100a, with company designation and signed by the captain, but without any names of men, and with the statement written across the front, "No drills in ____" (giving the name of the month). When no report whatever for a given month is received, it can not be known here whether it was forgotten or whether its omission was because the organization had no drills, frequently entailing unnecessary correspondence.

EXAMINATION OF PAY ROLLS.

Pay rolls are required to be made up and submitted promptly after June 30 and December 31 for such organizations as have qualified for pay during the preceding six months.

The study of his retained drill reports should show the company commander whether or not his company had qualified for pay; if it clearly fails to show the minimum required percentage of strength or attendance for the six months, there is no necessity for him to make out pay rolls; the nonreceipt of a pay roll is sufficient indication that the company commander knew that the company had not qualified under the law.

There is much carelessness in making the rolls and frequent necessity of returning them for completion or correction in some necessary particular; by reason of this, there is much time lost, not only by officers and clerks in the Militia Bureau, but also in paying the men of an organization. There is frequently a long delay in payment of rolls, causing a hardship to men of an organization, which is many times unnecessary, and is usually caused by the submission of faulty rolls with the loss of time in correcting them; but sometimes delay is unavoidable from congestion of work in the Militia Bureau. Pay rolls, when received, are stamped with the date of receipt and are checked up in this office in the order in which they are received, with the corresponding drill reports. If no errors are found, they are immediately forwarded to the Depot Quartermaster for payment, and comparatively quick action is obtained in getting the pay to the men by check. If, however, it is necessary to return pay rolls for correction, which occurs in a large percentage of cases, there is an inevitable, and usually long, delay. When such rolls are received back, they are stamped with the new date of receipt and have to take their place for administrative action corresponding to the last date of receipt, which is only fair to the companies whose rolls have come in between the first and last dates of receipt. It is apparent that the cause of a large number of errors may be removed by some slight modification in the form of the pay roll by which the officer making out the roll would have the necessary entries on its face much more clearly defined. These alterations in the blank rolls will be made as soon as practicable.

STAFF CORPS AND DEPARTMENTS.

The members of State staff corps and departments are National Guardsmen and, under the law, entitled to pay based on instructional work, given and received, corresponding to that required of line organizations. Such courses of instruction should be standardized and made practical and just both to the officer and to the Government. Members of such staff corps should be required to attend a minimum number of drills of neighboring organizations to familiarize themselves with military details (with which a material percentage of officers appointed in staff positions are not familiar), and thus add to their efficiency in staff work. As part of their instruction, such staff officers should be required to make a written report and critique to the Militia Bureau of what they saw on each occasion, which would serve to induce a closer study and analysis of military work.

As it is apparent that no staff officer should be appointed except from men who are acquainted with military affairs, it is believed that hereafter no appointments of staff officers of States should be given the recognition provided by law unless they have had military experience as officers of not less than two years' line duty for the

grade of captain, three years for that of major, and four for lieutenant colonel, and that their fitness for staff work be tested by written examination, which should include for all staff corps and departments the general principles of staff work common to all, and a specific examination in the particular work of the corps in which they are appointed.

Each such staff officer should also be required to attend a camp of instruction with troops for not less than 10 days in each year, there to stay and work on proper staff duty and to submit a written report thereon promptly after the end of camp to the senior inspector-instructor thereat. The latter should forward this report, with his comment and remarks, for file and reference with the efficiency reports and other military records of the staff officer concerned.

It is only through some definite system of instruction and tested results that paying these staff officers can be justified. The majority of officers and men of the National Guard earn the pay allowed by hard and conscientious work; those who fail to give adequate service and show adequate results should not be allowed to appear on the pay roll. A recent instance falling within this class occurred where a claim for a half year's pay was submitted by a staff officer, based on the fact that he had spent about two hours a week in reading military books and articles at home. This was laudable in itself, but scarcely entitled a man to draw pay from the Government for such slight instruction as could be obtained in that way and without system or examination.

FEDERAL FUNDS.

DISBURSEMENTS.

During the fiscal year 1917 the following amounts were disbursed from Federal appropriations for the support of the National Guard:

Under section 1661, Revised Statutes (arming and equipping the militia)-----	\$42, 805. 22
Under section 67, act of June 3, 1916 (arming, equipping and training the National Guard, 1917)-----	2, 558, 184. 98
Under section 83, act of June 3, 1916 (arms, uniforms, equipment, etc., for field service, National Guard, 1917)-----	2, 873, 249. 14
Ranges for field artillery target practice, National Guard, 1917--	300, 000. 00
Supplying and exchanging infantry equipment, National Guard, 1917-----	400, 000. 00
Encampment and maneuvers, Organized Militia, 1916-17-----	181, 955. 67
Special appropriation for procurement of field artillery matériel--	2, 520, 000. 00

NOTE.—Itemized tables of appropriations, disbursements, etc., are appended to this report.

As provided by the national defense act of June 3, 1916, certain Federal funds apportioned to the various States and theretofore disbursed by the property and disbursing officers for the United States in the States were, during the fiscal year 1917, disbursed by United States property and disbursing officers under a more direct and centralized Federal control.

Of the above amount, \$673,936.93 was disbursed by the property and disbursing officers of the several States, the Territory of Hawaii, the District of Columbia, and the Militia Bureau, for authorized expenditures of the National Guard and expenses in connection therewith. Under the appropriations "Arming and equipping the mili-

tia," under section 1661, Revised Statutes, "Arming, equipping, and training the National Guard, 1917," and "Arms, uniforms, equipment, etc., for field service, National Guard, 1917," the sum of \$4,413,809.37 was spent for supplies, equipment, etc., issued to the National Guard on requisitions of the governors of the several States and the Territory of Hawaii and the commanding general of the District of Columbia on requisitions approved by the Secretary of War.

The sum of \$181,955.67, under the appropriation "Encampment and maneuvers, Organized Militia," was expended for payment of transportation, pay, and subsistence, and other expenses of members of the National Guard participating in encampments and Coast Artillery defense exercises, both joint and State, such funds being disbursed by officers of the Quartermaster Corps of the Army.

The sum of \$2,558,184.98 shown in the above table under the appropriation "Arming, equipping, and training the National Guard, 1917," includes an amount of \$92,352.04 disbursed for travel expenses, quarters, etc., of officers and noncommissioned officers of the Regular Army on duty with or traveling in connection with the National Guard, as provided by the act of June 3, 1916. Certain of these disbursements were made by the disbursing officer of the Militia Bureau, and in other cases by the property and disbursing officers in the several States, Territory of Hawaii, and the District of Columbia.

PROPERTY.

The only radical change as to property during the year was in the method of accounting. On January 12, 1917, a circular letter was issued to adjutants general giving tentative regulations governing the accounting for Federal property issued to National Guard not in Federal service. These regulations were a radical change from any system that had been followed before, but were carefully prepared with a view to fitting in with new regulations for the Regular Army which were at that time under consideration by a board in the War Department and have since been approved and issued. In the States where these regulations were put into effect the system has worked very well. Much less confusion has existed in the transfer of property to Federal service than was the case in 1916. Those who read the regulations carefully found little trouble in accounting for supplies in accordance therewith.

EQUIPMENT.

Consistent effort has been made toward the goal of maintaining organizations at an effective strength and supplying them with the entire equipment that would be needed in taking the field.

INSPECTIONS OF THE NATIONAL GUARD.

Section 93 of the act of June 3, 1916, provides that the Secretary of War shall cause an inspection to be made at least once each year by inspectors general, and if necessary by other officers of the Regular Army, detailed by him for that purpose, to determine whether the amount and condition of the property in the hands of the National Guard is satisfactory; whether the National Guard is organ-

ized as prescribed by the act; whether the officers and enlisted men possess the physical and other qualifications prescribed; whether the organization and the officers and enlisted men thereof are sufficiently armed, uniformed, equipped, and being trained and instructed for active duty in the field or coast defense, and whether the records are being kept in accordance with requirements of the act. The reports of such inspections were prescribed as the basis for deciding as to the issue to and retention by the National Guard of the military property provided for by the act, and for determining what organizations and individuals should be considered as constituting parts of the National Guard within the meaning of the act.

The inspections were begun in compliance with the foregoing, but it was found impossible to complete same for two reasons: First, a large portion of the National Guard was retained in Federal service and was not in a position to be inspected as National Guard, and, second, the services of the officers necessary to make the inspections were required for other more important military duties owing to the pending war. This will explain the absence from this report of a large quantity of statistical information, such as was contained in former reports of the Bureau which was based on the annual reports of armory inspections.

There is, however, appended hereto a number of tables which show many illuminating details as to strength at various times and expenditures.

There is also appended a detailed report of militia operations in one department, which is an indication of what took place in others.

RECOGNITION OF NATIONAL GUARD UNITS.

The law requires that National Guard units be organized according to the regulations governing like units in the Regular Army. When a State authorizes the organization of a unit of any arm, it is and remains State militia until it is "recognized" by the United States as National Guard on application of the State.

Being complete in personnel, it is duly inspected by an Army officer detailed for the purpose. On his report that the unit is properly organized, that officers and men are suitable, and that the conditions indicate a probable efficiency of permanent character, the Chief of the Militia Bureau formally "extends recognition" to the unit as having met the requirements of law and as a unit of the National Guard. From that time on its members will be entitled to receive the pay prescribed by law if they meet the requirements of that law as to drill and instruction, and if the unit is maintained at the required strength.

RECOGNITION OF MEMBERS OF STATE STAFF CORPS AND DEPARTMENTS.

Under the law of May 12, 1917, duly recognized members of the State staff corps and departments were declared to form part of the National Guard, and the Secretary of War was authorized to fix the number and grades of officers and enlisted men in such corps and departments.

On May 29, 1917, the Secretary approved an allotment of commissioned and enlisted personnel based on strength of tactical units

organized, and by a circular issued under date of May 31, 1917, all adjutants general of States were notified that Federal recognition of such corps and departments would be extended as rapidly as possible on receipt of certified lists from the States, with new oaths for the officers, memoranda of qualifications, military history, and efficiency reports in case of previous military service, all going to show fitness for the office to which each such officer had been appointed.

The authorized allowance in number and grade of such staff officers for any State was based on the number of regiments organized in that State, in which the aggregate strength of smaller units making the equivalent of a regiment was counted as such.

The allotments of officers and enlisted personnel authorized are shown in Appendix D.

The status and functions of members of the State staff corps and departments were stated to be as follows:

1. The officers and enlisted men of the administrative staff of a State are in addition to the officers and enlisted men of the staffs of higher tactical units to be hereafter authorized, and are designated for the following purposes:

(a) To provide officers and enlisted men for administrative, sanitary, supply, and property purposes for the National Guard not in Federal service, before and after the tactical organizations have been completed, except when higher tactical units comprising staffs for administration and supply are mobilized.

(b) To provide administrative, sanitary, and supply personnel for mobilization and recruiting purposes for the National Guard in Federal service.

(c) To provide administrative, sanitary, and supply personnel for camps of instruction held under section 94 of the act of Congress approved June 3, 1916, except when such camps are of a complete higher tactical unit comprising a staff for administration and supply.

(d) For training National Guard officers in time of peace in duties of administration and supply and sanitation.

2. The designations of the senior officers of the several corps and departments shall correspond to those of the senior staff officers of a territorial department of the Regular Army as follows: Adjutant, inspector, judge advocate, quartermaster, surgeon. Officers junior in rank, serving in the same corps or department may be designated as assistants. Engineer and Signal officers for State administrative staffs are not authorized except in States where tactical organizations of not less than one battalion of Signal or Engineer troops are maintained as part of the National Guard, and the Engineer and Signal officer shall be detailed to the State administrative staff from line organizations of the Engineer and Signal Corps.

3. Other officers or enlisted men of a State staff, not included in tables herewith, and not recognized by the War Department as pertaining to the staff of tactical organizations, are not considered to be members of the National Guard within the meaning of the law.

4. Adjutants general and officers on the personal staff of the governor, not detailed from National Guard staffs or organizations, are not considered as part of the National Guard under the act of Congress approved June 3, 1916.

The immediate and pressing call for officers needed in supervision of construction and administration of camps and cantonments, and for general administrative work, resulted in calling into United States service over 80 per cent of officers of the State staff belonging to the Quartermaster Corps, a large number of medical and sanitary officers, and a few from other departments.

In the organization of a division composed of troops of different States, recommendations were made by the Militia Bureau for assignments to the division staff of the officers selected in nearly every instance from the staff lists of the States from which the tactical units of the division were drawn, and other things being equal, as nearly in proportion as was possible to the number furnished by each State.

This has resulted in a large proportion of the State staff appointed and recognized prior to August 5, 1917, having been designated for duty in their respective departments or corps on the staff of the National Guard divisions.

TERMS OF OFFICE OF COMMISSIONED OFFICERS IN NATIONAL GUARD.

Although the general intent of the defense act was apparently to have permanent commissions for the National Guard as for the Regular Army, it was found that many States had codes which provided for appointment for limited terms instead.

This method is worthy of consideration in order to provide a proper flow of promotion and development in the National Guard, and it is thought there should be a change of office and grade at the end of every five years. Officers not previously promoted should be transferred to the reserve.

EXAMINATIONS FOR APPOINTMENT AND PROMOTION.

Regulations for giving effect to the provisions of the defense act as to examinations for appointment and promotion were prepared and published, but because of the existing conditions almost all appointments were made subject to examination. Considerable progress was made in some branches in examining officers, but it was not until such matters were turned over to department commanders that much effect was given to the requirements.

A number who were found deficient have endeavored to retain their offices, but it seems wiser to stand by the provisions of the law and regulations as only efficient officers should be intrusted with the lives of the men who render military service to the Nation.

DETAILS TO SERVICE SCHOOLS.

Because of the suspension of the various schools, it was found impracticable to detail officers and noncommissioned officers thereat for instruction, except a class at Fort Sill for machine-gun instruction and another class at the War College for instruction in trench warfare.

With the upbuilding of a new National Guard every facility should be given the officer material to become proficient in their duties.

INSIGNIA.

The awarding by several of the States of ribbons for service in maneuver campaigns and for length of service, which are identical or similar in appearance to ribbons awarded in the Army for service in actual campaign, has been noted by this Bureau. It is believed that such practice has a tendency to cheapen the value of such ribbons to those who have earned them through arduous service. The practice should be discontinued. There is every reason to encourage the awarding by States of medals which represent long service in the National Guard, when such medals are distinctive, but it is not believed that the issue of a ribbon of any combination of colors for service other than that in actual campaign can serve any good purpose. A service badge of uniform pattern, to be worn by members of the National Guard of all States who have earned them, would be advisable.

REVISION OF THE MANUAL FOR NONCOMMISSIONED OFFICERS AND PRIVATES.

The Manual for Noncommissioned Officers and Privates of Infantry of the Organized Militia and Volunteers of the United States, 1914, was superseded by the Manual for Noncommissioned Officers and Privates of Infantry of the Army of the United States, 1917. This manual is now also used by Engineer companies (dismounted) and Coast Artillery companies in connection with the prescribed Infantry instruction and training.

The revision of the manual was in charge of Capt. William N. Hughes, jr., Militia Bureau, who was assisted by Col. Charles Gerhardt, of the Militia Bureau, and Col. Peter C. Harris, of The Adjutant General's Office.

The French-English vocabulary was prepared on very short notice by Capt. George M. Russell, Cavalry, for use in this issue. Service in France will necessarily bring about modifications and improvements.

Distributions of the 400,000 copies printed commenced about June 15, 1917, and deliveries were made from time to time as fast as received from the printer. Shipments were first made to the training camps, then the Regular Army, and then the National Guard organizations not in Federal service. On June 16, 1917, 21,436 copies, and on June 22, 1917, 5,634 copies, a total of 27,070, were ordered issued to National Guard Infantry, Engineer, and Coast Artillery organizations not in Federal service, the manuals to be taken later into Federal service. Similar organizations in Federal service were supplied in August, through The Adjutant General's Office.

In view of the fact that the 400,000 copies were insufficient to meet all requirements it was necessary to use economy in making distributions, and therefore issues were ordered on the basis of 26 copies to each lettered company.

NEW MOBILIZATION REGULATIONS.

Another document that was prepared jointly by the Militia Bureau and The Adjutant General's Office that should prove of considerable service is Special Regulations No. 55, Mobilization of the National

Guard. This pamphlet is the result of the experience gained in the mobilization of 1916 and the demobilization of 1916-17. It was prepared to meet the emergency that apparently was about to occur, and has already justified itself in the avoidance of many of the complications that took place in the mobilization of 1916.

REGULAR ARMY OFFICERS HOLDING COMMISSIONS IN NATIONAL GUARD.

The holding of commissions in the National Guard by officers of the Regular Army is a matter of comparatively recent growth, but has three stages, one leading up to and culminating in the Mexican border mobilization, another after muster out, and another still in connection with the mobilization of 1917.

PRIOR TO AND INCLUDING MEXICAN BORDER MOBILIZATION.

In 1911 a request was received from a State that an officer of the Regular Army be permitted to accept an appointment as colonel in the then Organized Militia. In view of the provisions of section 1222, Revised Statutes, the matter was referred to the Judge Advocate General, who held that the acceptance of such an office was not in violation of the provisions of said section; that offices in these organizations not being civil offices within the meaning of section 1222, Revised Statutes, are properly military offices, and as such may be accepted and the functions thereof performed by the officers of the Army of the United States on the active list without incurring the penalties prescribed in said section. He stated:

It is understood that the purpose of the appointment of Army officers as officers of the militia is to give them some relation of command in the militia, so that the purpose of Congress in authorizing their detail can be more effectually carried out. Having in view this relation of cooperation between the United States and the State in the matter of the training of the militia, I do not think it should be held that there is any such incompatibility between the two offices mentioned as would preclude the officer from holding both offices at the same time.

It remained, however, for the States, themselves, who must originate such action, to develop a real interest in the matter and to be sufficiently assured of the value of such a course as to depart from their former practice.

Not many cases occurred until the Mexican border mobilization, when a number of applications were received. The policy thereupon adopted contemplated placing officers in positions of real responsibility and command, but the rule was departed from to the extent of allowing officers to accept the appointment of lieutenant colonel. It was seen that the holding of such an office would have its drawbacks, so that approval was given with the understanding that the regular officer as lieutenant colonel should actually be made use of in the oversight of the regiment, and that, in case his services were not fully taken advantage of, he would be withdrawn. Under this policy some fifty odd officers were authorized to accept commissions in the National Guard.

AFTER MUSTER OUT FROM THE MEXICAN BORDER SERVICE.

When the troops were withdrawn from the Mexican border, decision was reached not to permit officers of the Regular Army to accept in time of peace commissions in the National Guard.

This decision was not in accord with the policy the Militia Bureau desired to build up under the act of June 3, 1916, and an endeavor was made to have it reversed, as it was assumed that Congress intended through an express sanction in the said act to confirm and establish as a policy the practice of allowing officers of the Regular Army to accept commissions in the National Guard. It was believed that the influence of a good regular officer holding a commission in a National Guard regiment would tend to improve the training of all the officers of the regiment more than if the officer was simply attached to the regiment as an instructor. Much evidence had been furnished during the Mexican border mobilization to show the good influence of regular officers in improving the discipline and training of National Guard regiments and other units in which they held commissions. Such organizations were said to have been conspicuous above all the rest in the evidences of superior efficiency, although regular instructors had been detailed for all National Guard organizations. It was held that what was true under the circumstances of border service should hold good in a considerable measure for the kind of service rendered by the National Guard in time of peace at home, and it was thought that whatever evils might come from giving effect to the provision in question could be guarded against or at least minimized through appropriate restrictive rules and through a careful consideration of the merits of each case as it was presented.

Shortly after this policy had been adopted The Adjutant General of the Army notified all of the regular officers holding commissions in National Guard organizations to resign their commissions, provided the organization had been mustered out of the service of the United States. Due to the fact that some organizations continued in service, there were one or two cases that were never reached.

IN CONNECTION WITH MOBILIZATION OF 1917.

In April, 1917, the policy for the emergency that had arisen was adopted, as follows:

(a) Officers, Regular Army, may be appointed or permitted to accept commissions to command organizations of the National Guard raised in any one State, under section 100 of the act of June 3, 1916, provided commissions offered them afford opportunity to impose discipline and promote efficiency of the organizations and place the officers in positions which will render them responsible for the discipline and efficiency of the organizations. For example, no officer of the Regular Army will be permitted to accept a commission in a National Guard regiment raised within any one State below the grade of colonel, or in a separate battalion below the grade of major.

(b) Individual applications to accept commission in the National Guard will be submitted to the Chief of the Militia Bureau, and his recommendations thereon will be based solely upon the efficiency of the officers. Favorable action need not be recommended merely upon personal application or application by the State authorities for an officer designated.

(c) After the National Guard in any one State has been called or drafted into the Federal service, if there remain on duty in that State officers of the Regular Army who have not been given commissions, either in joint units of the National Guard raised from two or more States or in units raised within the State in which they have been on duty, such officers of the Regular Army will be relieved from duty as inspector-instructors and either returned to duty with units of the Regular Army or detailed for duty in training the additional forces which Congress has been asked to authorize.

But before this policy could be placed in effect the Secretary of War directed that, on account of the urgent demand for the presence of trained officers with organizations of the Regular Army during the expansion now in operation and with the units of the force to be organized under the act of May 18, 1917, the policy in respect to the detail of Regular Army officers with the National Guard enunciated above was revoked and replaced by the following:

(a) No more details of Regular Army officers to the National Guard organizations will be made until the same are drafted into the Federal service, and then only to brigades or higher units, except where a composite regiment made up of elements from more than one State is in question.

(b) The officers of the Regular Army now on duty as National Guard officers under section 100 of the national-defense act will not be disturbed, but when drafted into the service of the United States these officers will be assigned to duties as the interest of the whole service may seem to require. This rule will also govern with respect to the Regular Army officers now on detail as inspector-instructors.

RECOMMENDATIONS.

It is thought that a proper policy to govern such cases in the future would be about as follows:

1. Officers of experience, gained in service in the Regular Army, should be distributed throughout all the national forces in order to move quickly and efficiently prepare them for service.

2. Such officers should be placed in positions of control and responsibility commensurate with their experience plus their brains and their industry. This means, as a general rule, from the top down in order of length of service in the Regular Army.

3. Whenever proper opportunity arises for placing a Regular Army officer in command, or in a place of power and responsibility in the National Guard, it should be done when it can be accomplished without offense to the National Guard as a whole or the States from which they come.

In this it will be necessary to avoid the suspicion that the War Department or the Militia Bureau is unduly favoring the interest of the Regular Army or of any individual officer.

ENLISTED MEN OF THE REGULAR ARMY AS OFFICERS OF THE NATIONAL GUARD.

The matter of the appointment of enlisted men of the Regular Army as officers of the National Guard had received little consideration until the mobilization of 1916, when many of the sergeant-instructors on duty with the militia were offered commissions. To become eligible under section 74, act of June 3, 1916, it was necessary that they first enlist in the National Guard, and some 51 were discharged for this purpose. Their services in their new capacities proved of great value, but the state of the law at the time made it impossible to get the fullest benefit from them except at the cost of serious sacrifice on their part. As has been said, they had been discharged from the Regular Army, and unless they reenlisted within three months they lost their right to continuous-service pay—a very serious matter to men of 10, 15, or 20 years' service, as many of them were. Some resigned their National Guard commissions and reenlisted within the time limit; others continued with their militia

organizations until mustered out and then returned to the Regular Army at a rate of pay far below that which they had when leaving it. This obvious injustice has, as previously mentioned, now been remedied by certain provisions contained in the act of May 12, 1917:

That the enlisted men who were discharged from the Army to accept a commission in the National Guard, or in any volunteer force that may be organized in the future, at the call of the President, June 18, 1916, be restored to their original status upon reenlisting in the Regular Army: *Provided*, That they reenlist within three months from date of muster-out of the United States service, and that in computing service for retirement and continuous-service pay, service as an officer in the National Guard or in any volunteer force that may be organized in the future, while in the service of the United States be counted.

And a similar clause made provision for cases of the same nature that may arise in the future.

With retired enlisted men this hardship did not exist, for it was and is possible for them to hold commissions in the National Guard without being discharged from the retired list of the Regular Army. Several such men have been commissioned, but the number is necessarily limited, for unless the candidate is qualified as belonging to one of the other classes named in section 74, act of June 3, 1916 (which is rarely the case with an enlisted man), he can become eligible for appointment only by first enlisting in the National Guard. The upper age limit for original enlistment being fixed by law at 45 years, nearly all retired men are effectually excluded, and in the course of a few years more, when early retirements on account of "double time" credits for foreign service have entirely ceased, retired enlisted men will be excluded altogether.

It is thought there should be legislation to make retired enlisted men available for commissioned rank in the National Guard—as, for example, by specifying them as one of the classes from which appointments may be made. (Sec. 74, act of June 3, 1916.)

INSTRUCTION.

DIVISION INSPECTOR-INSTRUCTORS.

With a view to decentralization and to a building up of tactical divisions in fact, a number of division inspector-instructors were detailed and an effort made to utilize their services for these purposes. They were used instead, as a rule, in the annual inspections of organizations and in connection with their muster-out and muster-in, so that no real progress was made along the lines originally intended.

The plan might well be followed in future with the modifications made necessary by changed conditions.

When the National Guard returns to its former status it would be well to consider instruction, supply, and equipment (both ordinary and reserve) on a divisional basis, which would free the War Department and the Militia Bureau of many details of administration.

INSPECTOR-INSTRUCTORS AND SERGEANT-INSTRUCTORS.

As a whole the corps of officers and sergeants of the Regular Army on duty with the National Guard have rendered faithful and efficient service. They have been guided by the general instructions furnished by the Militia Bureau, but often found it necessary to use

their own judgment and initiative in dealing with local conditions. In this they have usually exercised a sound discretion.

SERGEANT-INSTRUCTORS.

At the request of various State authorities, 31 noncommissioned officers of the Regular Army on duty as sergeant-instructors have received commissions in National Guard organizations in Federal service since the last report. Seventeen sergeant-instructors have been discharged to accept commissions as temporary second lieutenants of the Army and two have received appointments as provisional second lieutenants. The number of sergeants of the different arms, corps, and departments of the Regular Army who have been on duty with the several States since July 1, 1917, is shown in Table 14.

FIELD INSTRUCTION.

During the past year the attendance at ordinary summer camps of officers and men has been superseded by actual field work by a large percentage of State organizations, most of which were on duty along the Mexican border for several months during 1916 and the first half of 1917, and besides which a large amount of duty was done by such regiments in guarding railroad bridges and tunnels, waterworks, etc., in the different States at the time the relations of this Government with Germany became strained and war was finally declared. This experience, since July 1, 1916, has been extremely valuable in increasing the efficiency of both officers and men of the State troops and enabling them to come to a much higher degree of training and discipline since their call into the United States service.

INFANTRY.

STRENGTH.

The requirements of the act of June 3, 1916, made it necessary to devise some new method with reference to increasing the strength of infantry companies.

The old required strength of 65 per lettered company, which often was much lower, in fact, would no longer serve in building up a balanced organization.

To meet these requirements, authority was given for the raising of detached platoons as parts of companies, because with the added desire for a strength in lettered companies of 100, to be later increased to 150, it was apparent that small communities would be effectively discouraged from maintaining any National Guard units at all unless some effort was made to meet the new conditions.

This actually made but small difference during the current year, as the National Guard was no sooner brought back from the Mexican border than it was almost immediately necessary to recall it to service in guarding utilities of prime military importance.

When war was declared there was a strong movement in some quarters to enlist to maximum strength, regardless of armories or adequate supplies of uniform and equipment.

This was equivalent to what had been observed in 1916—a conversion of an organization of the National Guard into a volunteer

organization for war purposes only, a mushroom growth which had to be discouraged in order to allow a proper distribution of available supplies. This tendency went further and resulted in new organizations with new and untried officers being presented and accepted.

INSTRUCTION AND TRAINING.

The instruction of the Infantry has been interfered with to a great extent by the happenings of the past year. While on the border the National Guard organizations were furnished regular instructors, and undoubtedly were much benefited thereby, but on returning to their home stations it was found that the necessary duties of mustering out and making the annual inspection of returning organizations occupied the whole time of the inspector-instructors so that very little attention could be given to the instruction of organizations by them.

To meet the situation that arose later when the National Guard was recalled to Federal service, the Militia Bureau recommended that inspector-instructors be placed under the immediate control of department commanders so that they could be utilized for the instruction of the National Guard whether in service or not.

A scheme of instruction had been published which was based on the following fundamental principles:

(a) There must be a definite and progressive plan and schedule of instruction. Every course of instruction should embrace certain definite prescribed subjects and be for a definite period in order to unify instruction, prevent unnecessary repetition, and use the available time to the best advantage. On the completion of the prescribed course of theoretical instruction, all study should not cease, but sufficient post-graduate work should follow to broaden the student's professional horizon and keep him in touch with new methods and ideas.

(b) The efficiency of the squad, including its leadership, is the basis of efficiency, and this efficiency in turn depends on the thoroughness of the training of individual members of this unit. Military efficiency can only be attained through competent and instructed officers and noncommissioned officers.

(c) The officer must know the duties of the men under his command in addition to his own specific duties.

(d) The efficiency of every command depends on the efficiency of the units or teams composing it. As each team in a large command must be under the direct control of its immediate chief, it is evident that such chief should have all possible charge of the instruction of his team. Authority and responsibility should exist in equal degree. From such a system there should result not only suitable instruction of the team, but also comradeship among the individual members, pride in the team as a unit, and that confidence and habit of command on the part of the leader so necessary to efficient leadership.

(e) The best instruction is that which is practical and which is taught through personal contact between instructor and those under instruction. Any other kind is justified only when practical instruction can not be given.

(f) Officers and noncommissioned officers of each grade should be competent to take up the duties of the next higher grade.

(g) The ultimate object of all instruction being *field service efficiency*, field maneuvers and field firing should be considered as the culmination of previous training and the test of its thoroughness.

(h) The paramount object of instruction is not to impart knowledge as knowledge, but rather to so train the soldier that he shall be better qualified from year to year in meeting the situations that may face him in the field. It is believed that this desired development can be secured by accustoming the soldier to investigate for himself.

(i) The applicatory method of instruction should be used as far as possible. This method finds its principal application in theoretical instruction, especially in armory school courses, but its advantages should not be overlooked in practical work. Example: A company commander signaling to platoon commanders without company actually being present.

PRACTICAL INSTRUCTION.

Except in very few instances there has been no practical instruction in camp or field exercises other than on the Mexican border, as almost the entire infantry of the National Guard has been engaged in guarding railroads, munition factories, and other utilities of military importance. Their instruction must now necessarily await their being gathered into divisional camps, especially the organizations recently raised which have been almost entirely without instruction of any kind.

MACHINE-GUN INSTRUCTION.

During the period of service of National Guard organizations on the Mexican border many officers and enlisted men took advantage of an opportunity to pursue instruction in machine-gun practice at the School of Musketry, Fort Sill, Okla., at Fort Bliss, Tex., and at the Machine-gun School, Harlingen, Tex. From October 16 to December 20, 1916, the class of instruction for noncommissioned officers at the School of Musketry included 58 National Guardsmen, who entered the course very deficient in those matters relating to the technique of fire and combat fire. The results were so gratifying that the commandant of the school recommended that an invitation be extended to the several States to secure the attendance of a limited number of officers of the National Guard at the school for a six weeks' course, commencing April 5, 1917. This was approved by the Secretary of War, and 18 officers of machine-gun companies, not in the Federal service, were ordered to take the course, 17 of whom completed same. The instruction was expanded by approving of a 9 or 10 weeks' course for selected field officers (major or lieutenant colonel), whether in or out of Federal service, to begin May 28, 1917, the officers detailed to be selected particularly for their probable fitness as instructors in rifle, machine-gun, and grenade firing. One hundred and twenty-five field officers were detailed from the several States, and finished the course July 1, 1917.

SMALL-ARMS TARGET PRACTICE AND COMPETITIONS OF NATIONAL GUARD, BOTH IN AND OUT OF FEDERAL SERVICE.

On account of the call of the National Guard into Federal service early in the target practice season of 1916, and the assignment of

these organizations to duty on the Mexican border, where many of them remained practically throughout the target practice year, and the further fact that there were insufficient target range facilities available in and near the vicinity where these troops were stationed, it is impossible to give the usual complete target practice reports in tabular form. There was also an insufficient supply of ammunition available at the border camps to enable the organizations to participate in record practice. A number of the organizations had practice at their mobilization camps, and practice of a certain kind was had by practically all organizations during their stay on the border or at home stations (Table No. 5, Appendix E). Because of the conditions prevailing as stated above, this practice in many cases was not of the character on which definite records could be based. Many organizations engaged in practice on improvised ranges, and the firing was more of the character of instruction practice than record practice. Detailed reports were not kept by many organizations because the practice was not carried on under the usual conditions, and this accounts for the absence of the usual statistical reports from many States. In but few cases was the return of the organizations to their home stations sufficiently early in the year to enable them to conduct the usual record practice.

While the detailed reports of target firing by the National Guard for the year are therefore not available from all the States, and it is not possible to determine the relative degree of efficiency in small-arms practice, it is believed that the other duties of the organizations while in Federal service were of a compensating character.

The Bureau called for the usual reports of target practice, and where definite details of practice were not given the reports received were of a sufficient character to indicate that the practice, where held, was all that could be expected under the circumstances; and where no practice was held it was generally through no fault of the organizations concerned. The reports, however, were so fragmentary and incomplete that a tabulation of the results would signify but little. In lieu thereof the following notes are given:

ALABAMA.

First Infantry.—Preliminary courses and field firing. Did not shoot regular course.

Fourth Infantry.—Instruction firing from June 19 to October 21, 1916, at mobilization camp, Montgomery. No record course fired, on account of lack of ammunition. In March, 1917, participated in field firing by platoon, company, and battalion at Nogales, Ariz.

ARIZONA.

The report of the adjutant general states that while the National Guard of the State was in Federal service for eight months they did not fire the record course. The allowance of ammunition was 100 rounds per rifle and 50 rounds per pistol, which was expended by each organization in practice firing, qualification course, which was carried forward as rapidly as possible, although interrupted by changes of station of some of the units. Gallery practice and pistol

practice were had by all organizations during January and February, 1917, when weather conditions permitted. Actual record practice was started March 6, 1917, in spite of high winds, which made it almost impossible to keep the targets in place. The machine-gun company fired the record course March 6 and 7 and Company I on March 8, 9, and 10. After this time practice was discontinued on account of preparations for muster out.

ARKANSAS.

In Federal service; none held.

CALIFORNIA.

Qualifications, rifle: 224 expert riflemen, 300 sharpshooters, 473 marksmen, 260 first-class men, 95 second-class men.

Unqualified: 286 who fired and completed instruction course, 196 who fired but failed to complete instruction course, 1,176 who failed to fire.

Total firing range practice, 1,829; total borne on rolls during target year, 3,635; total qualifying in gallery practice test, 221; total firing prescribed gallery course, 249.

Qualification, pistol: 21 expert pistol shots, 18 first-class men, 64 second-class men.

Unqualified, 191.

The records of firing of nine companies were lost in a flood at Nogales, Ariz.

COLORADO.

Qualifications, rifle: 15 expert riflemen, 25 sharpshooters, 53 marksmen, 102 first-class men, 25 second-class men.

Unqualified: 224 who fired and completed instruction course; 106 fired but failed to complete instruction course.

The First and Second Battalions of Infantry and First Squadron of Cavalry held prescribed practice while in Federal service.

Companies A and B, Engineers, did not complete practice.

CONNECTICUT.

Qualifications, rifle: 55 expert riflemen, 38 expert riflemen hold-overs, 109 sharpshooters, 187 marksmen, 151 first-class men, 48 second-class men.

Unqualified: 123 who fired and completed instruction course, 901 who fired but failed to complete instruction course, 331 who failed to fire.

Total firing range practice, 1,580; unclassified, 167; total borne on rolls during target year, 2,119; total qualifying in gallery practice, 457; total firing prescribed gallery course, 466.

Qualifications, pistol: 2 expert pistol shots, 7 first-class men, 10 second-class men.

Unqualified, 460.

First Infantry had no practice while in the Eastern Department. At Nogales the ammunition allowance, 100 rounds per man, was insufficient to permit firing prescribed courses.

Fifth Cavalry, Troop A, did not fire record practice; 84 men had practice on three separate days. Troop B had the range at Nogales for two mornings only and made no qualifications. At Arivaca there was no range, but the troop held combat practice and pistol practice.

Tenth Field Artillery, Battery E, had pistol practice at Tobyhanna, Pa. Battery F had preliminary pistol practice on this range also.

First Field Company Signal Troops had no practice while in Federal service.

DELAWARE.

There was no firing by the National Guard not in Federal service, except a very limited amount during a camp of instruction for officers from June 12 to 17, 1916.

First Battalion, Infantry fired instruction course only.

Second Battalion, Infantry did not fire qualification course.

DISTRICT OF COLUMBIA.

Qualifications, rifle: 70 expert riflemen, 99 sharpshooters, 265 marksmen, 400 first-class men, 143 second-class men.

Unqualified: 391 who fired and completed instruction course.

Qualifications, pistol: 2 expert pistol shots, 6 first-class men, 52 second-class men.

Unqualified, 181.

FLORIDA.

Second Infantry fired record course.

GEORGIA.

Qualifications, rifle: 40 expert riflemen, 27 expert riflemen hold-overs, 41 sharpshooters, 42 marksmen, 13 first-class men, 1 second-class man.

Unqualified: 1 who fired and completed instruction course, 5 who fired but failed to complete instruction course, 412 who failed to fire.

Total firing range practice, 357; unclassified, 127; total borne on rolls during target year, 708.

First Battalion, Field Artillery, fired pistol instruction course at El Paso, Tex.

HAWAII.

No report.

IDAHO.

None held.

ILLINOIS.

Qualifications, rifle: 149 expert riflemen, 54 expert riflemen hold-overs, 122 sharpshooters, 115 marksmen, 303 first-class men, 33 second-class men.

Unqualified: 28 who fired and completed instruction course, 678 who fired but failed to complete instruction course, 622 who failed to fire.

Total firing range practice, 1,482; unclassified, 98; total borne on rolls during target year, 2,202; total qualifying in gallery practice test, 992.

Qualifications, pistol: 1 expert pistol shot, 6 first-class men, 5 second-class men.

Unqualified, 1.

The First, Second, Third, Fourth, Seventh, and Eighth Infantry, the First Cavalry, and Company A, Engineers, were in Federal service during the target season.

INDIANA.

In Federal service; none held.

IOWA.

First Infantry had no record practice while in Federal service, but fired 100 rounds per man in camp at Fort Des Moines. Application was made by regimental commander for target practice at Brownsville, Tex., but not granted.

KANSAS.

Qualifications, rifle: 111 expert riflemen, 64 expert riflemen hold-overs, 131 sharpshooters, 178 marksmen, 100 first-class men, 94 second-class men.

Unqualified: 102 who fired and completed instruction course, 43 who fired but failed to complete instruction course, 1,429 who failed to fire.

Total firing range practice, 793; unclassified, 270; total borne on rolls during target year, 2,516; total qualifying in long range practice, 141; total qualifying in gallery practice test, 769; total firing prescribed gallery course, 789.

KENTUCKY.

First Infantry, Company A, fired instruction course only; Second Infantry fired preliminary course only; Signal Corps, Company B, had no practice.

LOUISIANA.

In Federal service; none held.

MAINE.

Second Infantry had rifle and pistol practice near Laredo, Tex., for eight days, but no qualifications were made. Pistol firing was limited to dismounted instruction practice.

MARYLAND.

Qualifications, rifle: 89 expert riflemen, 30 expert riflemen hold-overs, 228 sharpshooters, 417 marksmen, 142 first-class men, 110 second-class men.

Unqualified: 246 who fired and completed instruction course, 187 who fired but failed to complete instruction course, 194 who failed to fire.

Total firing range practice, 1,438; total borne on rolls during target year, 1,704; total qualifying in gallery practice test, 255; total firing prescribed gallery course, 285.

Qualifications, pistol: 6 first-class men, 17 second-class men.

Unqualified, 68.

Fourth Infantry had gallery practice only while in Federal service in Southern Department. Battery A, Field Artillery, had pistol practice at Tobyhanna, Pa.

MASSACHUSETTS.

Qualifications, rifle: 254 expert riflemen, 445 expert riflemen hold-overs, 388 sharpshooters, 651 marksmen, 91 first-class men, 45 second-class men.

Unqualified: 39 who fired and completed instruction course, 41 who fired but failed to complete instruction course, 339 who failed to fire.

Unclassified, 354.

Total firing range practice, 1,954; total borne on rolls during target year, 2,647; total qualifying in long-range practice, 45; total qualifying in gallery practice test, 989; total firing prescribed gallery course, 1,306.

Qualifications, pistol: 33 expert pistol shots, 32 first-class men, 21 second-class men.

Unqualified, 344.

Second Infantry held preliminary instruction practice and field firing at Columbus, N. Mex.

Fifth Infantry: No qualifications in Army course were made or attempted. Practice confined to Organized Militia course. All recruits enlisted in the State and who were sent to the border participated in practice at the Wakefield, Mass., range. At El Paso, Tex., no opportunity was given to pursue a regular and systematic course. The regiment constructed a gallery range and the men who had not qualified theretofore were instructed in the elementary courses. The only outdoor range available was 8 miles distant, and one day's practice was had thereon. Improvised targets were constructed and such practice as the limited supply of ammunition would afford was had. After return to home station the men of Company G took the Organized Militia course while waiting to be mustered out. Summary of practice by companies:

Company A: While on guard at the cement plant, 30 men fired 50 rounds each at 200, 300, and 500 yards, private range. No pistol practice.

Company B: All men had subcaliber practice on 50-foot range while on duty at Ysleta. On the Pennsylvania range 29 men fired five rounds each. No pistol practice.

Company C: On return home 40 men qualified in the Organized Militia course. All others fired but did not complete course. No pistol practice.

Company D: At Fort Hancock, Tex., 70 men fired 10 shots at 200 yards.

Company E: At El Paso 67 men fired 50 rounds at 200 yards.

Company F: All men fired 10 rounds at 200 yards.

Company H: All men fired 10 rounds at 200 yards.

Company I: All men had subcaliber practice at Camp Cotton and 80 men fired 10 rounds at 200 yards.

Company K: Forty men fired 30 rounds at 200 yards.

Company L: No opportunity afforded for practice while in Federal service.

Company M: Twenty-five men fired 75 rounds at 200 yards.

Machine-gun company: Engaged in practice several days.

Headquarters company: No opportunity afforded for practice.

Supply company: Had no pistols or opportunity to practice.

First Field Artillery: Pistol practice had at El Paso, each man firing 50 rounds. No attempt to qualify made.

First Field Battalion, Signal Troops: No practice had while in Federal service.

No report made for the Eighth and Ninth Infantry and the First Squadron of cavalry in Federal service.

MICHIGAN.

In Federal service; none held.

MINNESOTA.

In Federal service; none held.

MISSISSIPPI.

Qualifications, rifle: 28 expert riflemen, 66 sharpshooters, 202 marksmen, 192 first-class men, 106 second-class men.

Unqualified: 651 who fired and completed instruction course, 102 who failed to fire.

Pistol practice: Unqualified, 159.

MISSOURI.

In Federal service; none held.

MONTANA.

In Federal service; none held in State.

The Second Infantry while on the border in Federal service completed its course of firing.

NEBRASKA.

In Federal service; none held.

NEVADA.

No Organized Militia.

NEW HAMPSHIRE.

All organizations, except Coast Artillery, were in Federal service and had no firing to report. The Coast Artillery participated in practice at times, but each organization is not provided with a range so that the practice assumed more of the nature of desultory firing.

First Infantry: No qualifications were possible, as no opportunity for firing record courses was afforded while in Federal service. Five days' practice was held at Laredo, Tex., September 4 to 8, the modified course being fired, excluding 500 yards.

The Signal Corps had no practice.

NEW JERSEY.

Qualifications, rifle: 570 expert riflemen, 11 expert riflemen hold-overs, 530 sharpshooters, 984 marksmen, 529 first-class men, 72 second-class men.

Unqualified: 44 who fired and completed instruction course, 624 who fired but failed to complete instruction course, 463 who failed to fire.

Unclassified, 60.

Total firing-range practice, 2,355; total borne on rolls during target year, 2,878; total qualifying in long-range practice, 70; total qualifying in gallery practice test, 2,926; total firing prescribed gallery course, 3,042.

Qualifications, pistol: 2 expert pistol shots; 3 second-class men.

Unqualified, 15.

Fourth Infantry arranged for practice at Douglas, Ariz., September 4, but troops were ordered home. Rifle practice for all companies held when in Federal service at Seagirt, N. J., entire regiment firing regular courses. No opportunity for pistol practice.

First Field Company, Signal Corps, held pistol practice by sections nearly every day while on the border. Ordered home before time set for record practice for qualification.

Field Artillery: Battery A had no practice while in Federal service. Battery B had no practice during the year.

Rifle practice held by the First Squadron of Cavalry, the First Infantry Field Staff and Headquarters Company, and the Fifth Infantry Field Staff and Headquarters Company at Douglas, Ariz., but no record was kept.

No pistol practice was held by the machine-gun company, Second Infantry and Fourth Infantry.

NEW MEXICO.

In Federal service; practice held, but no reports made.

NEW YORK.

Qualifications, rifle: 316 expert riflemen, 555 expert riflemen hold-overs, 516 sharpshooters, 1,106 marksmen, 990 first-class men, 844 second-class men.

Unqualified: 4,934 who fired and completed instruction course, 599 who fired but failed to complete instruction course, 579 who failed to fire.

Unclassified, 105.

Total firing-range practice, 9,465.

Qualifications, pistol: 10 expert pistol shots, 16 first-class men, 51 second-class men.

There were no target ranges in the sector occupied by the New York division while in Federal service on the border, and improvised ranges or ranges at a distance were used.

Third Infantry: The nearest range was a 3-target range at Sam Fordyce, used by Regular troops. The elementary rifle course was fired on improvised targets at 50 yards, and pistol practice at 25 yards. The firers were rated on the basis of 50 per cent or better,

good; 33½ per cent or better, fair; less than 33½ per cent, poor. The results of the practice were: Rifle—Good, 268; fair, 312; poor, 722; total, 1,302. Pistol—Good, 54; fair, 77; poor, 70; total, 201.

Seventh Infantry: No regular course was fired while in Federal service. Rifle and pistol practice was held on a 50-yard range, but no records were kept.

Twelfth Infantry held practice at Penitas and Sam Fordyce.

Fourteenth Infantry had no practice while in Federal service.

Twenty-third Infantry made no qualifications while in Federal service.

Sixty-ninth Infantry had practice at Penitas and Sam Fordyce.

Seventy-first Infantry held no practice.

Seventy-fourth Infantry: At Pharr, Tex., each man armed with the rifle fired 20 shots at 50 yards and each officer and man armed with the pistol fired 20 shots at 25 yards. No qualification course was fired.

First Field Artillery had pistol instruction practice at McAllen, Tex., each man firing 20 shots.

Second Field Artillery held pistol practice in Southern Department while in Federal service, but not at prescribed ranges, the ratings being made on the basis of good, fair, and poor. No rifle practice was held.

The First Battalion, Signal Corps, held pistol practice at McAllen, Tex., each man firing 20 shots. No record practice was had.

Twenty-second Regiment Engineers had no record practice while in Federal service.

NORTH CAROLINA.

Qualifications, rifle: 46 expert riflemen, 47 sharpshooters, 142 marksmen, 26 first-class men, 52 second-class men.

Unqualified: 471 who fired and completed instruction course; Third Infantry fired Organized Militia course at home camp in July and August, but had no practice while in Federal service.

Troop A, Cavalry, had instruction practice only.

Company A, Engineers: All members completed gallery course and instruction course in known-distance firing.

Company B, Engineers: Half of company completed Regular Army instruction course and remainder completed all but rapid fire. No qualifications were made, as, before the record course could be shot, orders were received to cease practice and return to home station.

OHIO.

Qualifications, rifle: 93 expert riflemen, 110 sharpshooters, 193 marksmen, 58 first-class men, 53 second-class men.

Unqualified: 145 who fired and completed instruction course, 189 who fired but failed to complete instruction course.

Qualifications, pistol: 1 first-class man. Eight companies did not fire record course.

The following organizations in Federal service did not fire record course: Second, Third, Fourth, Fifth, Sixth, and Eighth Infantry; First Battalion Engineers; First Squadron Cavalry.

OKLAHOMA.

No report received.

OREGON.

Qualifications, rifle: 137 expert riflemen, 96 expert riflemen hold-overs, 123 sharpshooters, 201 marksmen, 185 first-class men, 63 second-class men.

Unqualified: 176 who fired and completed instruction course, 330 who fired but failed to complete instruction course, 726 who failed to fire.

Unclassified, 262.

Total firing range practice, 1,240; total borne on rolls during target year, 2,143; total qualifying in long-range practice, 95; total qualifying in gallery practice test, 498; total firing prescribed gallery course, 549.

Qualifications, pistol: 9 expert pistol shots, 2 first-class men, 4 second-class men.

Unqualified, 51.

The Adjutant General reports he has no records of small-arms practice of the National Guard while in Federal service, but understands Battery A, Field Artillery, and Troop A, Cavalry, had practice.

Third Infantry did not have practice, except preliminary, for a few days, before muster out, but had practice before called into Federal service.

PENNSYLVANIA.

Third Infantry: No qualification scores were shot, as practice shooting only was held.

Fourth Infantry: Ammunition allowance not sufficient to qualify in various grades. Temporary ranges established and all enlisted men were given preliminary instruction and fired 10 shots. Skirmish run was also had.

Sixteenth Infantry: Target practice was held while in Federal service. No prescribed course was followed. No records of firing were kept and no qualifications were made.

First Brigade, Seventh Division: No ammunition available for qualifying and only used for practice.

Third Field Artillery: Pistol practice had by most members at El Paso, Battery B; of 125 men having pistol practice, 22 qualified.

First Cavalry had pistol practice on improvised targets.

Company A, Engineers, had no practice while in Federal service.

First Field Battalion, Signal Troops. Only pistol practice held was a course to familiarize officers and men with handling the arm. The division commander instructed that no record of scores be reported, and scratch records only were kept. Only 50 rounds of ammunition were issued per man, and no regular prescribed course could be fired.

RHODE ISLAND.

Qualifications, rifle: 101 expert riflemen, 4 expert riflemen hold-overs, 228 sharpshooters, 317 marksmen, 231 first-class men, 18 second-class men.

Unqualified: 74 who fired but failed to complete instruction practice, 782 who failed to fire.

Unclassified, 310.

Total firing range practice, 1,173; total borne on rolls during target year, 2,065; total qualifying in gallery practice test, 700; total firing prescribed gallery course, 786.

Qualifications, pistol: 5 expert pistol shots, 55 first-class men, 66 second-class men.

Unqualified, 757.

Cavalry Squadron: Prior to leaving the State for border service all the troops had instruction in handling arms, and shot at short ranges. Practice course was shot at El Paso, Tex.

Battery A, Field Artillery: Instruction practice only held while in Federal service.

SOUTH CAROLINA.

Second Infantry: All officers and men except eight had rifle, and all officers and men had pistol practice instruction, but no qualification practice.

Company A, Engineers, had preliminary practice, but made no qualifications.

SOUTH DAKOTA.

In Federal service; none held.

TENNESSEE.

In Federal service, except Company G, Separate Infantry, which did not fire.

First Infantry: Fired prescribed militia course in Federal service; no pistol practice.

Cavalry, Troop B: Instruction practice only.

TEXAS.

In Federal service; none held.

UTAH.

Qualifications, pistol: 7 first-class men, 33 second-class men.

Unqualified, 98.

VERMONT.

In Federal service; some practice, but no reports received.

First Infantry, Companies E, F, G, and H: Completed regular course.

VIRGINIA.

Second Infantry: No practice while in Federal service; all companies, except D, completed instruction course, special B. No regular pistol practice, but some officers and men fired.

Fourth Infantry: Practice held, but no report made.

First Squadron Cavalry: No range practice. Special course B fired while in Federal service on border; regular course not followed in pistol practice.

Company A, Signal Corps: No practice while in Federal service.
Machine-gun company: Did considerable firing, but no report made.

WASHINGTON.

Qualifications: 62 expert riflemen, 3 expert riflemen holdovers, 32 sharpshooters, 84 marksmen, 141 first-class men, 72 second-class men.

Unclassified, 74.

Unqualified: 1,173 who fired and completed instruction course.

Qualifications, pistol: 10 expert pistol shots, 17 first-class men, 118 second-class men.

Unqualified, 434.

Unclassified, 74.

WEST VIRGINIA.

In Federal service, partially held, but no reports rendered.

First Infantry: Did not complete gallery practice and outdoor practice courses.

Second Infantry: Partially completed gallery practice, but called into Federal service and partially completed outdoor practice later in the year.

WISCONSIN.

Entire National Guard, with the exception of the First Separate Company, was ordered into Federal Service in June. On account of wet and inclement weather there had been no opportunity to practice on the ranges. When the commands moved to the State mobilization camp there was no opportunity to fire, and if any firing was had at the training camp near San Antonio no reports were made.

First Separate Company: Used during greater part of summer as a guard at the State military reservation and had no opportunity to fire for record.

WYOMING.

In Federal service; none held.

CAVALRY.

The provisions of the act of Congress approved June 3, 1916, which authorized the supply of 32 Government-owned horses to each troop, together with forage therefor and the pay of caretakers, has greatly stimulated the interest in this branch of the service and has resulted in much progress in equitation and knowledge of mounted duties in existing organizations.

The following new units have been organized and recognized during the year:

Alabama: 1 regiment complete.

Colorado: Regimental headquarters, headquarters supply and machine-gun troop, and 2 squadrons.

Connecticut: Squadron headquarters and 2 troops.

District of Columbia: Squadron headquarters and 3 troops.

Indiana: 1 squadron.

Kansas: Squadron headquarters and 3 troops.

Louisiana: 1 troop.

Michigan: Squadron headquarters and 2 troops.

Ohio: Regimental headquarters, headquarters supply and machine-gun troops, and 2 squadrons.

Oklahoma: Squadron headquarters and 2 troops.

Oregon: Squadron headquarters and 3 troops.

South Dakota: 1 regiment complete.

Tennessee: 1 troop.

Texas: Regimental headquarters, headquarters supply and machine-gun troops, and 2 squadrons.

Utah: 2 troops.

Washington: Squadron headquarters and 3 troops.

Wisconsin: 9 troops.

The above increment, together with the existing Cavalry organizations, aggregated 16 regiments, being the necessary Cavalry component for the 16 Infantry divisions which it had been decided to organize from the National Guard. The plan of organization decided upon included two Cavalry divisions, and the regiments composing these divisions were assigned to States, but no effort was made to organize them pending the completion of the Infantry divisions.

Prior to the call of 1917 for the National Guard, the War Department announced that the Cavalry of the National Guard would not be included in the call, and later announced that the Cavalry of the National Guard would be called dismounted.

Following these announcements several governors made application for the conversion of Cavalry organizations into Field Artillery. Authority was given for the conversion of the following:

Illinois: 1 regiment Cavalry into 1 regiment and 1 battalion Field Artillery.

Ohio: 1 regiment Cavalry into 2 regiments Field Artillery.

Utah: 10 troops Cavalry into 2 regiments Field Artillery.

Troop A Montana Cavalry, was disbanded during the year.

The 1916 Cavalry Drill Regulations were distributed early in 1917, and the examination of National Guard Cavalry officers was deferred until the officers had sufficient time to familiarize themselves with the new drill regulations. These examinations were in progress when the draft took place.

The reports of officers detailed to make the annual inspection of the National Guard show, with few exceptions, uniformly good care of animals and increased interest in mounted instruction. No case of improper use of public animals has been reported during the year.

FIELD ARTILLERY.

Since the last annual report, the Field Artillery of the National Guard has been in the service of the United States a large part of the time, and some organizations have been continuously in Federal service. After returning to their homes from the Mexican border, there were evidences of deterioration in many units, and it became necessary to disband several batteries and reorganize them with a different personnel. In other cases Federal recognition was withdrawn and the matériel was shipped to depots.

Every annual report of the Bureau has pointed out the grave deficiency of the country in Field Artillery, and the policies of the

Bureau have been consistently directed toward overcoming this deficiency. Upon the declaration of war with Germany, many States endeavored to supply their allotment of batteries. It was evident that nearly all the new units were not only without the armory facilities and the community and State support that would insure permanency, but they were raised for the war only, and were, in fact, volunteers rather than National Guard. Nevertheless they were accepted by the War Department, and as a result the following Field Artillery organizations were in existence at the date of the draft, August 5, 1917:

	Units.	Batteries.		Units.	Batteries.
California.....	2 regiments.....	12	New Hampshire.....	1 battery.....	1
Colorado.....	1 battalion.....	3	New Jersey.....	1 regiment.....	6
Connecticut.....	2 batteries.....	2	New Mexico.....	1 battery.....	1
District of Columbia.....	do.....	2	New York.....	1 brigade.....	18
Georgia.....	1 battalion.....	3	North Carolina.....	1 regiment.....	6
Illinois.....	3 regiments.....	18	Ohio.....	3 regiments.....	18
Indiana.....	1 regiment.....	6	Oregon.....	2 batteries.....	2
Iowa.....	do.....	6	Pennsylvania.....	1 brigade.....	18
Kansas.....	do.....	6	Rhode Island.....	1 battalion.....	3
Louisiana.....	do.....	6	Tennessee.....	1 regiment.....	6
Maine.....	1 regiment (heavy).....	6	Texas.....	2 regiments.....	12
Maryland.....	3 batteries.....	3	Utah.....	1 regiment.....	6
Massachusetts.....	2 regiments.....	12	Virginia.....	do.....	6
Michigan.....	1 battalion.....	3	Washington.....	1 battery.....	1
Minnesota.....	1 regiment.....	6	Wisconsin.....	1 regiment.....	6
Mississippi.....	do.....	6	Total batteries.....		222
Missouri.....	2 regiments.....	12			

The total shows an increase of 114 batteries over those in existence at the date of the last annual report, or a total increase of slightly more than 100 per cent. One hundred twenty-six of the batteries were without material, and none was available for issue to them.

HORSES FOR FIELD ARTILLERY.

Upon the return of the National Guard from the Mexican border practically all batteries and headquarters were allowed to retain the allowance of 32 horses for each battery and 4 for each headquarters. The reports of the annual inspection made in the early part of 1917 showed that the results of this liberality on the part of the Federal Government were disappointing. Stable accommodations were often inadequate, and the proper care of the horses was the exception rather than the rule. Very little use was made of the animals in many organizations, and the value derived from them was not commensurate with the cost of their purchase and maintenance.

FIELD TRAINING.

The encampment on the Mexican border afforded an excellent opportunity for field training, and the result was generally satisfactory. The report of the inspection of a majority of the batteries by the Inspector General's Department showed that the average National Guard battery made 86 per cent as many hits as the average Regular battery, and fired 60 per cent as fast. The firing of three National Guard batteries compared favorably, except in point of time, with that of the best Regular batteries. In view of the lack of

instructors prior to the mobilization and of the limited number who could be furnished at the camps, this result was highly gratifying and showed that the system of training that had been established could be made effective. The horsemanship and the care and training of animals were not satisfactory, but due allowance must be made for the lack of opportunity that had been afforded to train the personnel prior to the mobilization.

ARMORY TRAINING.

While a course of armory training was prescribed for the year, it has been evident that little progress was made. This was due mainly to the lack of instructors. The officers of the Regular Army on duty with the Field Artillery of the National Guard have been largely employed in mustering duty and in making the annual inspection, so that little time has been available for instruction. In many cases no attempt could be made to conduct any armory training. Unless an adequate number of officers and noncommissioned officers can be made available as instructors, little progress can be expected, either at the armories or during the encampments for field training.

Ninety-six batteries were fully equipped at the date of the draft. A majority of these organizations have been in existence for a number of years and contain a large per cent of officers and enlisted men whose experience and training render them a most valuable asset to the country. It is believed that these batteries can be made ready for active service by a proper system of training in a very short time. Their condition not only vindicates the existence of the National Guard Field Artillery but shows that an extension of adequate Federal support in the way of instructors and other proper allowances can be made to produce efficiency of a high order.

COAST ARTILLERY.

Since the date of the last report (Oct. 1, 1916), the following new companies of Coast Artillery have been organized: Rhode Island, 3 companies; New York, 2 companies; New Jersey, 2 companies; Maryland 3 companies; District of Columbia, 1 company; Virginia, 7 companies; Florida, 3 companies; Texas, 5 companies; California, 12 companies; Washington, 3 companies.

The strength of the National Guard Coast Artillery since 1909, based upon the annual Federal inspections, is shown in the following table:

Year.	Officers.	Enlisted men.	Companies.	Average enlisted strength per company.
1909.....	395	6,288	119	53
1910.....	457	6,864	122	56
1911.....	446	6,654	120	55
1912.....	472	7,228	125	58
1913.....	479	7,171	126	57
1914.....	460	7,150	123	58
1915.....	440	7,438	123	60
1916.....	450	8,090	127	64
1917.....	573	11,659	159	71

On the date of the draft into Federal service there were 188 companies and the total strength of the Coast Artillery, including those companies organized since the Federal inspection for 1917, was approximately 765 officers and 21,215 enlisted men.

The record of enlisted men who have qualified under War Department orders for various grades and ratings shows improvement from year to year, as is indicated below:

	1914	1915	1916	1917		1914	1915	1916	1917
Master electricians.....	2	5	6	8	Firemen.....	5	8	6	11
Engineers.....	6	8	11	8	Master gunners.....	3	5	12	20
Electrician sergeants, first class.....	9	9	13	19	Gun commanders.....	40	63	137	284
Electrician sergeants, second class.....	3	8	14	25	Gun pointers.....	27	37	72	143
Assistant engineers.....					Plotters.....	35	62	121	201
Radio sergeants.....				1	Observers.....	48	99	157	310
					First-class gunners.....	628	848	909	1,492
					Second-class gunners..	579	1,216	1,230	1,599

The following table shows the results of service target practice held during the last three years:

	1914		1915		1916	
	Mean range (yards).	Hits (per cent).	Mean range (yards).	Hits (per cent).	Mean range (yards).	Hits (per cent).
12-inch rifle.....	6,635	22.6	6,942	45.5	8,910	15.4
10-inch rifle.....	6,565	34.5	7,185	43.3	9,676	22.9
8-inch rifle.....	4,878	45.5	5,977	33.3	8,144	25
6-inch rifle.....	5,301	28.6	4,958	18.1	6,405	9.9
3-inch rifle.....					2,347	30
12-inch mortar.....	4,720	13.6	4,701	10.5	7,015	5.3

The system of instruction applied to the Coast Artillery was prescribed by War Department orders in 1911, and under the original orders attention was concentrated almost entirely upon Coast Artillery subjects. The scope of the courses was restricted on account of the limited number of inspector-instructors and sergeant-instructors who could be detailed to assist the National Guard. In the past year additional officers became available and the program of instruction was revised and extended to cover a much wider field of work. The new instruction order was published in circular 14, Militia Bureau, 1917, but the mobilization came before any great progress had been made under the new schedules of instruction.

The task heretofore set for the National Guard Coast Artillery was to man one-half of the gun and mortar batteries in the continental limits of the United States. The total strength taken into the Federal service at the time of the draft was sufficient for the purpose, though the large proportion of new men throughout the companies made immediate service of batteries impossible. In addition to the coast-defense work assigned to these troops, two companies of Maryland Coast Artillery were converted into a trench mortar battery and three companies of Virginia Coast Artillery were converted into the headquarters trains and military police for service with the First Composite Division of National Guard in France. As the situation

develops it may be found advisable to convert other Coast Artillery organizations into heavy artillery for service in France. Their training should have laid a proper foundation of instruction for such work.

SANITARY TROOPS.

Due to the influence of the European war, there has been an unprecedented activity during the past year in both the organization and training of the sanitary units and detachments of the National Guard.

Since the date of the last report 21 field hospitals and 21 ambulance companies have been organized and extended Federal recognition. In addition 93 sanitary detachments have been organized for line organizations, making a total of 59 field hospitals, 47 ambulance companies, and 267 sanitary detachments, which were drafted into the Federal service August 5, 1917.

The following table shows the existing sanitary units in the Federal service, and the number required for the 16 National Guard Divisions:

Division.	States comprising National Guard divisions.	Organized.	Shortage.
Fifth.....	Maine (none); New Hampshire (1 F.H.); Vermont (none); Massachusetts (2 F. H. and 2 A. C.); Connecticut (1 F. H. and 1 A. C.); Rhode Island (1 A. C.).	4 F. H.... 4 A. C....	None.
Sixth.....	New York (4 F. H. and 4 A. C.).....	4 F. H.... 4 A. C....	None.
Seventh.....	Pennsylvania (4 F. H. and 4 A. C.).....	4 F. H.... 4 A. C....	None.
Eighth.....	New Jersey (1 F. H. and 1 A. C.); Delaware (none); Maryland (1 F. H. and 1 A. C.); District of Columbia (1 F. H.); Virginia (1 F. H. and 1 A. C.).	4 F. H.... 3 A. C....	1 A. C. (Del.)
Ninth.....	North Carolina (1 F. H. and 1 A. C.); South Carolina (1 F. H.); Tennessee (1 F. H. and 1 A. C.).	3 F. H.... 2 A. C....	1 F. H. (Tenn.) 2 A. C. (1 Tenn.) (1 S. C.)
Tenth.....	Alabama (1 F. H. and 1 A. C.); Georgia (1 F. H.); Florida (1 F. H.).	3 F. H.... 1 A. C....	1 F. H. (Ga) 3 A. C. (1 Ala.) (2 Ga.)
Eleventh.....	Michigan (1 F. H. and 2 A. C.); Wisconsin (2 F. H. and 2 A. C.)..	3 F. H.... 4 A. C....	1 F. H. (Mich.)
Twelfth.....	Illinois (4 F. H. and 4 A. C.).....	4 F. H.... 4 A. C....	None.
Thirteenth...	Minnesota (1 F. H. and 1 A. C.); North Dakota (1 F. H.); South Dakota (none); Iowa (2 F. H. and 2 A. C.); Nebraska (1 F. H.).	15 F. H.... 3 A. C....	1 A. C. (Nebr.)
Seventeenth.	Kentucky (2 F. H. and 1 A. C.); Indiana (2 F. H. and 3 A. C.)...	4 F. H.... 4 A. C....	None.
Eighteenth...	Arkansas (1 F. H. and 1 A. C.); Mississippi (1 F. H.); Louisiana (1 F. H.).	3 F. H.... 1 A. C....	1 F. H. (Miss.) 3 A. C. (2 Miss.) (1 La.)
Nineteenth...	California (2 F. H. and 2 A. C.); Utah (1 F. H.); Arizona (none); Colorado (1 F. H.); New Mexico (none); Nevada (none).	4 F. H.... 2 A. C....	2 A. C. (1 Utah.) (1 Colo.)
Twentieth...	Washington (1 F. H.); Oregon (1 F. H.); Montana (none); Idaho (1 F. H.); Wyoming (none).....	3 F. H.... No A. C....	1 F. H. (Wyo.) 4 A. C. (1 Wash.) (1 Oreg.) (1 Idaho.) (1 Wyo.)
Total.....		59 F. H....	5 F. H.
Total.....		17 A. C....	17 A. C.
Total units.....		106.....	22.

¹ One field hospital in excess in this division.

The commissioned personnel of the medical department, National Guard, on August 5, 1917, whose eligibility under the act of June 3, 1916, was passed upon by this Bureau, and were recognized, consisted as follows: One thousand four hundred and seven medical officers, 53 reserve medical officers, 307 dentists, and 81 veterinarians, a total of 1,848 officers. The reserve officers were not drafted into the Federal service, as they were not included in the call of the President. The medical officers of the State staff corps were not included in the call. However, a number of these were drafted later to fill vacancies and for the divisional staff. The States of Arkansas and Texas had an excess of eligible dental surgeons, who were not drafted into the Federal service. Exclusive of the medical officers of the State staff corps and reserve there was a deficiency of approximately 60 officers for the National Guard drafted into the Federal service. If the National Guard reserve medical officers and the remainder belonging to the State staff corps are drafted into the Federal service, the medical department of the National Guard will have its full quota required by Tables of Organization, 1917, for the National Guard drafted into the Federal service.

The enlisted personnel of the Medical Department had, on August 5, the maximum strength authorized by Tables of Organization, 1917, the approximate strength being 19,000.

A considerable number of medical officers whose efficiency records on the border were reported as excellent, severed their connection with the National Guard; some for personal reasons, others to accept commissions in the Officers' Reserve Corps of the Army, which gave them better opportunities for advancement; so that about 50 per cent of the present commissioned personnel have had no prior military service.

INSTRUCTION AND TRAINING.

The few officers and noncommissioned officers of the Regular Medical Corps assigned to duty with the medical department of the National Guard were used for various duties, so that very little instruction was given the sanitary troops by the Regular Establishment. A uniform and progressive course of armory instruction was prescribed for the sanitary units and detachments, which was for the most part conscientiously followed by the responsible National Guard medical officers. Schools for officers and noncommissioned officers were established, and a special course of instruction was prescribed. The medical officers' correspondence course had to be abandoned for lack of inspector-instructors to supervise it.

EXAMINATIONS UNDER THE ACT OF JUNE 3, 1916.

Due to the nonavailability of Regular medical officers to supervise and act as members of boards, this Bureau was unable to convene boards of medical officers to examine persons appointed and promoted in the medical department, National Guard, as required under the act of June 3, 1916. One board was convened for this purpose in the State of Connecticut, where there was a retired medical officer on duty. Upon recommendation of this Bureau these examinations were turned over to department commanders. They, however, were

only able to determine the qualifications of a few applicants for appointment and promotion in the medical department. The eligibility of all appointments was passed upon by this Bureau, and appointments authorized, subject to future examination, which has resulted in securing a high grade of medical officers.

EQUIPMENT.

The supply departments have been unable to furnish full equipment or supplies to the National Guard since January 1, 1917, so that 19 newly organized field hospitals and 22 ambulance companies were not equipped August 5, 1917; 40 field hospitals and 25 ambulance companies were supposed to be fully equipped and had animal-drawn transportation, but not the animals.

Tables of Organization, 1917, require that half of the units of the sanitary train have motor-drawn transportation. From funds appropriated this Bureau the Surgeon General's office placed contracts for 265 motor ambulances and 105 motorcycles to equip 23 field hospitals and 23 ambulance companies with motor equipment. The total cost of this equipment, some of which has been delivered, amounted to \$488,300. The furnishing of motor trucks and cars for these units pertains to the Quartermaster Corps. They were unable to furnish this equipment prior to the draft of the National Guard.

Early in 1917, \$94,500 was allotted to the Ordnance Department from funds appropriated this Bureau for furnishing 1,200 officers' belts (par. 864, M. M. D.) and 6,600 enlisted men's belts (par. 865, M. M. D.), including the necessary pouches and tags and ration bags. These articles were intended for equipping the commissioned and enlisted personnel, medical department, National Guard, to replace old and obsolete equipment, and delivery was to be made in July, 1917. None were issued to the National Guard prior to the draft.

Indiana Ambulance Company No. 3, Michigan Ambulance Company No. 2, and Wisconsin Ambulance Company No. 1 were furnished complete standard motor equipment by private persons, approved by the War Department.

MEDICAL DEPARTMENT TRAINING CAMP.

With a view to providing an adequate number of trained medical officers of the National Guard who could take up the work of training and instructing the sanitary personnel and line troops at concentration camps, which could not be furnished by the Regular Establishment, 257 medical officers and 762 enlisted men of the National Guard from among those not in the Federal service and who were not on the border were called into the Federal service in June and sent to the Medical Department training camps at Fort Oglethorpe, Ga., Fort Riley, Kans., and Fort Benjamin Harrison, Ind., for a three-month course of intensive training. In addition 1 field hospital and 1 ambulance company, National Guard, were requested to be sent to each of these camps for the purpose of aiding in giving instruction to the student officers and enlisted men in attendance, none from the Regular establishment being available for this purpose.

Those selected were Field Hospital No. 1 and Ambulance Company No. 1, Tennessee, to Fort Oglethorpe, Ga.; Field Hospital No. 1 and Ambulance Company No. 1, Indiana, to Fort Benjamin Harrison, Ind.; and Field Hospital No. 1 and Ambulance Company No. 1, Missouri, to Fort Riley, Kans. Four medical officers, National Guard, were requested called into Federal service for the purpose of instructors at Medical Department training camps.

PHYSICAL EXAMINATIONS.

Prior to the act of June 3, 1916, the War Department had no mandatory authority concerning the physical requirements of the personnel of the Organized Militia not in the Federal service, although all but four States claimed to have adopted the standard of physical examination prescribed for the Regular Army. These requirements were not rigidly enforced by the States, as evidenced by the large number found physically disqualified upon muster into the Federal service under the calls of May 9 and June 18, 1916. The mobilization report, Organized Militia, 1916, shows that from data available there were 23,721 rejections out of a total of 128,517 persons examined, making an average of 18.45 per cent rejected on account of physical defects.

It might be interesting to compare the above with the mobilization of the National Guard in 1917. From the data available, representing 39 States, there were 11,762 rejections out of 121,721 examined, making an average of 9.9 per cent rejected on account of physical disabilities.

CAUSES OF REJECTION.

The following is a tabulation of the causes of rejection on account of physical disabilities.

Cause.	1916	1917
	5 States, 35,824 troops ex- amined.	39 States, 121,721 troops ex- amined.
Veneral diseases.....	287	1,026
Poor physiques, under height and weight.....	1,731	1,932
Defective vision and diseases of the eyes.....	741	1,508
Deformity of feet and flatfoot.....	414	1,369
Amputations and deformities.....	195	612
Goffer.....	57	67
Defective mentality.....	40	135
Diseases of the nose and throat.....	24	108
Veins, arteries, and varicosities.....	80	158
Hydrocele and varicocele.....	99	306
Hernia.....	396	1,032
Defective dentition.....	249	629
Defective hearing.....	96	401
Overweight and obesity.....	65	35
Nervous diseases.....	19	113
Hemorrhoids.....	43	144
Heart and lungs.....	724	1,291
Illiteracy.....	49	10
Skin diseases.....	26	7
Alcoholism and drug habits.....	12	62
Unclassified.....	189	820
Total.....	5,526	11,762

ENGINEERS.

In order for engineer units of the National Guard to be of any real value to the Government, the officers must be practicing engineers, and a majority of the enlisted personnel must be men who are engaged in engineering trades. These conditions impose certain difficulties upon maintaining engineer units in the National Guard in time of peace, which are very hard to overcome except in a few localities where local conditions are especially favorable. The men with trades who would be desirable in an engineer company, as a rule get plenty of physical exercise in the course of a day's work, so that more exercise in the way of a drill after hours does not appeal to them. Construction men, who would be especially desirable, have to follow their jobs to such an extent that their belonging to a company would detract from attendance at drill and permanence of personnel, which is desirable in a National Guard unit. The prospect of active service attracts a great many of these men, as is shown by the increase in the National Guard Engineers in the past year. All new units have been required to show certain evidences of permanence, which are required of the National Guard, but undoubtedly a large proportion of the new men have joined solely on account of the prospect for active service in the near future.

On July 1, 1916, the strength of the National Guard Engineers was 77 officers and 1,284 enlisted men. This was a gain over the preceding year of 8 officers and 16 enlisted men. This number was largely increased during this year, first due to the impetus given by the border situation, and later from the strained relations, and declaration of war against Germany.

Every effort has been made to insure obtaining a desirable personnel in all of the new engineer units. A minimum of 109 men has been required for recognition of a company. All of the officers must be practicing engineers, with an engineering experience equal to that which is required by the Chief of Engineers for similar grades in the Engineer Reserve Corps. A majority of the men in any company must have trades which will render them valuable men in the company. Reports from inspectors, some of them officers of the Corps of Engineers, indicate that the personnel, as far as trades are concerned, is up to the standard which can be expected for the regular service.

From all indications it seems that a high-class personnel has been obtained in the National Guard Engineers. With proper training after they are drafted into Federal service it is believed that they will render efficient service.

SIGNAL CORPS.

During the past year the following changes have taken place in the signal troops:

In order to avoid confusion in designating organizations to be called into service of the United States, it was necessary to require signal troops of the National Guard to be designated so as to conform to the regulations covering similar organizations in the Regular Army, and in accordance therewith the State authorities were directed to change the designation of their signal organizations to conform to the following:

All radio companies to be designated as Company A.

All wire companies to be designated as Company B.

All outpost companies to be designated as Company C.

The field signal battalions were increased by the addition thereto of an outpost company.

The general function of this company is to extend the lines of information in the division forward of the brigade. Specifically, its normal function is to furnish telephone communication between the Infantry brigade commander and his regimental commanders in combat. In addition, it may be called upon to supplement the work of the other companies of the field battalion wherever the same may be necessary or desirable.

The present organization of the various National Guard signal troops is as follows:

Ten field battalions.

Companies.		Companies.	
Kansas.....	8	Ohio.....	8
Massachusetts.....	8	Pennsylvania.....	3
Michigan.....	2	Texas.....	3
Missouri.....	8	Washington.....	3
New York.....	8	Wisconsin.....	8

Sixteen field companies.

Alabama, radio company.	Iowa, outpost company.
California, wire company.	Kentucky, wire company.
Colorado, wire company.	Nebraska, wire company.
Connecticut, radio company.	New Hampshire, wire company.
District of Columbia, wire company.	New Jersey, radio company and out-
Hawaii, wire company.	post company.
Illinois, radio company.	North Carolina, radio company.
Indiana, radio company and wire com-	Virginia, radio company.
pany.	

AVIATION.

Under the annual appropriation of \$76,000 to provide the necessary equipment for training a nucleus of instructed aviators in the National Guard, the following applicants who successfully passed the required physical examination were detailed to receive a course of instruction in military aviation at the United States Corps Aviation School:

School.	Name of officer.	State.
Mineola, L. I.....	Corpl. Brackett O. Watkins.....	Alabama.
San Diego, Cal.....	Capt. Almon Stroupe.....	Arkansas.
	Second Lieut. Ralph L. Taylor.....	Connecticut.
	Sergt. Maj. Frederick I. Eglin.....	Indiana.
	First Lieut. Arthur A. R. Scheele.....	Kansas.
	First Lieut. K. G. Pulliam.....	Kentucky.
	Second Lieut. Ernest G. Horgan.....	Maine.
	Second Lieut. Dean Smith.....	New Mexico.
	First Lieut. Edwin E. Newbold.....	Nebraska.
	Capt. Frank W. Wright.....	Oregon.
	Lieut. W. W. Spain.....	South Dakota.
	First Lieut. Geo. C. Furrow.....	Tennessee.
	Capt. Reuben H. Fleet.....	Washington.
	Capt. J. Beverly Alexander.....	Do.
	First Sergt. Paul R. Stockton.....	New York.
	Sergt. Edmund A. Kruss.....	Do.
	Pvt. Roland S. Knowlson.....	Do.
	Pvt. Thomas F. Ward.....	Do.
Memphis, Tenn.....		
San Diego, Cal.....		

The First Aero Company, New York National Guard, was disbanded May 12, 1917.

TARGET RANGES AND TRAINING CAMPS.

FOR MACHINE GUN AND FIELD ARTILLERY INSTRUCTION.

In order to afford proper facilities for the field training of the Field Artillery of the National Guard adequate camping grounds and target ranges are indispensable. In 1915 a large tract of land was purchased at Tobyhanna, Pa., and all the necessary facilities for instruction were prepared. During the past year additional land has been purchased for this reservation, and the total area now comprises about 25,000 acres. This camp stands available for all the batteries in the Eastern and the Central Atlantic States. It is so located that troops may attend with a minimum of cost and time, and the conditions for training are ideal. The reservations at Sparta, Wis., Fort Riley, Kans., and Fort Sill, Okla., were available for the batteries of the States centering on these places, but there was no provision for the batteries of the Southern States and the Pacific Coast States. During the past year appropriations were secured for the purchase of ranges in these two sections of the country. After an exhaustive examination of all available sites, the southern range was purchased at Anniston, Ala., and the Pacific coast range was purchased at Monterey, Cal.

The range at Anniston comprises about 18,500 acres of land, with ideal topography. It is centrally located for the States concerned. The conditions for transportation, health, and climate are admirable. In order to test the suitability of the range an encampment was held there in 1915, and the experience of the troops was eminently satisfactory. Already the advantages of this range have been demonstrated by the location there of a divisional camp of the National Guard.

The range at Monterey, Cal., comprises over 15,800 acres, extending from the Del Monte property to the Salinas Valley, and having communication with Monterey Bay. It has been used by the Government for a number of years for military purposes, and it possesses all the requisite advantages of a central location, abundant railway communications, favorable climatic conditions, and water supply. The terrain is sufficiently varied to afford all the facilities for maneuvering and firing that could be desired, with ease of mobility for artillery of all types.

All these ranges afford facilities for the training of machine-gun units, in addition to artillery. Ample ranges for a large number of machine-gun units have been constructed during the past year at Tobyhanna, Pa., and at Anniston, Ala. A range already exists at Sparta, Wis. It is proposed to construct a machine-gun range at Monterey, Cal., and at such other of the ranges as may be required for machine-gun training. The Bureau is thus in possession of ample facilities for intensive training of the Field Artillery and machine-gun units of the National Guard in all sections of the country, and it is prepared upon the restoration of peace to resume the system of summer encampments which has already proved so beneficial to the troops who were allowed to attend them.

THE NATIONAL MATCHES, 1916.

The national matches, in which the Organized Militia has in the past taken a very active part, were provided for by the National Board for the Promotion of Rifle Practice, January 13, 1916, for the year 1916, and its action was approved by the Secretary of War. The rules and regulations governing the national matches and other competitions were published in Bulletin No. 6, War Department, February 25, 1916. Upon the dispatch of the troops to the Mexican border announcement was made that because of the emergency the matches would not be held. On September 13, however, it was decided by the War Department to hold the matches as previously scheduled. While the arrangements therefor had to be hurried, the matches and competitions were conducted in a most satisfactory manner. Col. S. W. Miller, Infantry, was the executive officer. The service of the camp was performed by detachments of United States Coast Artillery and United States Marines.

Department commanders were authorized to send teams to represent the National Guard in Federal service. Twenty-four teams from the National Guard in Federal service and three teams from the National Guard not in Federal service participated in the national team match, and finished in the following order:

2. New York. (In Federal service.) Winner of "Hilton trophy."
3. Pennsylvania. (In Federal service.)
4. Minnesota. (In Federal service.)
5. Iowa. (In Federal service.)
6. New Jersey. (Not in Federal service.)
7. Indiana. (In Federal service.)
8. Georgia. (In Federal service.)
10. North Carolina. (In Federal service.)
11. Wyoming. (In Federal service.)
12. Ohio. (Not in Federal service.)
13. Delaware. (In Federal service.)
15. New Mexico. (In Federal service.)
16. Kansas. (In Federal service.)
17. Mississippi. (In Federal service.)
18. Colorado. (In Federal service.)
19. California. (In Federal service.)
20. Maryland. (In Federal service.)
21. Oklahoma. (In Federal service.)
22. Florida. (In Federal service.)
23. Tennessee. (In Federal service.)
25. North Dakota. (In Federal service.)
30. District of Columbia. (Not in Federal service.)
32. West Virginia. (In Federal service.)
35. Texas. (In Federal service.)
36. Arkansas. (In Federal service.)
38. Virginia. (In Federal service.)
39. Nebraska. (In Federal service.)

The National Guard team, composed of picked men of the various National Guard teams, finished second in the United Service match.

The United States service was represented by one team from the United States Marine Corps.

Under authority of Congress, bulletin No. 6, War Department, February 25, 1916, was amended (bulletin No. 37, War Department, Sept. 26, 1916), admitting for the first time civilian teams from each State, composed of members of rifle clubs, to participate in the national team match. The following States were represented by civilian teams, given in the order in which they finished in the national team match:

9. California.
14. District of Columbia.
24. Indiana.
26. Ohio.
27. Washington, D. C., high schools.
28. Florida civilian.
29. Missouri.
31. Millitary College of South Carolina.
33. Idaho.
34. Iowa.
37. Michigan.
40. Kansas.
41. Oklahoma.
42. Wyoming.
43. Texas.
44. Minnesota.
45. Alaska.
46. Nevada.
47. Pennsylvania.
48. South Dakota.
49. Maryland.
50. Utah.
51. West Virginia.
52. Georgia.
53. Arkansas.
54. Alabama.
55. Florida Military Academy.

W. H. Spencer, of the Missouri civilian team, won the national individual match, and George E. Cook, of the District of Columbia civilian team, won the national pistol match.

THE NATIONAL MATCHES FOR 1917.

Rules for the 1917 national matches were drawn early in the year, but owing to the emergency were not published. The War Department announced on May 25, 1917, that the national matches for 1917 would not be held.

CIVILIAN MARKSMANSHIP.

Under the provisions of section 113 of the national-defense act of June 3, 1916, and the Army appropriation act of August 29, 1916, there was established in this Bureau on December 13, 1916, the office of director of civilian marksmanship, in charge of matters relating to rifle practice by civilians. The law contemplates the establishment and maintenance of rifle ranges for the use of those in the military and naval service and by all able-bodied males capable of

bearing arms. As required by the act of August 29, 1916, the National Board for the Promotion of Rifle Practice prescribed regulations for carrying the legislation into effect, which have not been published owing to the war. The director has collected much data on rifle ranges and rifle practice and is in thorough touch with conditions as affecting civilian rifle practice. A step in the direction of range construction under this law was taken when the director investigated and favorably reported on the acquisition of a target range site in northern New Jersey, which will serve a large population in that State and New York as well. The department approved the proposed target range and bills for its establishment were introduced in Congress. At the close of the fiscal year the bill had been passed by the Senate, but remained unacted upon by the House of Representatives.

The Government has an important military asset in these rifle clubs, which at the close of the fiscal year totaled 2,188, with a membership of 108,577. A great proportion conduct regular target practice on both indoor and outdoor rifle ranges, and the whole constitute a strong force of marksmen.

Col. S. W. Miller, Infantry, D. O. L., was appointed and served as director from December 13, 1916, to April 27, 1917, when he was relieved to take command of the citizens' training camp at Fort Niagara, N. Y. Capt. W. N. Hughes, jr., Infantry, D. O. L., in addition to his other duties in the Bureau, was temporarily in charge of the office of director of civilian marksmanship from April 28, until June 1, 1917, when Maj. E. V. Bookmiller (retired) was appointed director and assumed the duties of the office and has since been in charge. (See Appendix A for report of director.)

PERSONNEL OF BUREAU AND OFFICE FORCE.

At present the following-named officers are on duty in the Militia Bureau:

Col. Jesse McI. Carter, Cavalry.

Col. Charles Gerhardt, Infantry.

Lieut. Col. Louis T. Hess, Medical Corps.

Maj. Ira L. Reeves, Infantry.

Maj. Louis C. Wilson, National Guard, United States.

Capt. Thomas M. Spaulding, Coast Artillery Corps.

Maj. Henry R. Stiles, United States Army, retired.

Maj. Edwin V. Bookmiller, United States Army, retired, director of civilian marksmanship.

Maj. David P. Cordray, United States Army, retired.

Maj. William Baird, United States Army, retired.

Maj. Lewis D. Greene, United States Army, retired.

Since the last annual report the following-named officers were relieved from duty as assistants to the Chief of the Militia Bureau for various causes:

Col. Samuel W. Miller, Infantry, director of civilian marksmanship.

Col. George W. McIver, Infantry.

Col. William C. Brown, Cavalry (on temporary duty).

Col. Charles P. Summerall, Field Artillery.

Lieut. Col. Frank M. Rumbold, Third Missouri Infantry.
Maj. John A. Dapray, United States Army, retired.
Maj. Curtis W. Otwell, Corps of Engineers.
Maj. W. A. Mitchell, Corps of Engineers.
Maj. Henry B. Clark, Coast Artillery Corps.
Maj. Charles R. Pettis, Corps of Engineers.
Maj. Alexander E. Williams, Quartermaster Corps.
Maj. Clarence Deems, jr., Field Artillery (on temporary duty).
Maj. Dana T. Merrill, Infantry.
Maj. William N. Hughes, jr., Infantry.
Maj. Walter Krueger, Infantry.
Capt. John L. DeWitt, Quartermaster Corps.
Capt. Horace P. Hobbs, Infantry.
Capt. Frank R. Curtis, Signal Corps.
Capt. John B. Barnes, Infantry (on temporary duty).
Capt. George A. Lynch, Infantry.
Capt. Campbell B. Hodges, Infantry.

All the officers who have been on duty in the bureau have been faithful and efficient in the performance of their duties.

The mobilization and muster in of the National Guard for border service and for service with the war with Germany necessarily increased to a very large extent the duties of the small clerical force of the Bureau. These have been performed by faithful and competent service during the prescribed working hours and by work after such hours, on Sundays, and legal holidays, and by the yielding in many instances of the authorized leaves of absence. Great credit is due to this force, which should be recognized by increased remuneration commensurate with the services performed, and it is recommended that the increase included in the estimates for the fiscal year 1919 be allowed.

Respectfully submitted.

WM. A. MANN,
Major General, General Staff,
Chief of the Militia Bureau.

The SECRETARY OF WAR.

APPENDIX A.

REPORT OF DIRECTOR OF CIVILIAN MARKSMANSHIP.

This office was established December 13, 1916, in compliance with acts of Congress approved June 3 and August 29, 1916. The general purpose of these acts was the encouragement of rifle practice by citizens capable of bearing arms through the establishment of rifle ranges, issues of arms and ammunition, and detail of instructors. The act of August 29, 1916, appropriated \$300,000 to be expended under regulations prescribed by the National Board for the Promotion of Rifle Practice, and approved by the Secretary of War. The national board met in January, 1917, and adopted regulations of a general character to guide the director of civilian marksmanship in his duties, and authorized him to make use of the National Rifle Association of America as an agency in instructing civilians in marksmanship. Twenty-one hundred and eighty-eight civilian rifle clubs affiliated with the National Rifle Association were in existence on June 30, 1917, of which 489 had been organized since the establishment of this office.

The act of March 3, 1905, authorized the sale of magazine arms, ammunition, ordnance stores and equipment, and the act of April 27, 1914, authorized the free issue of magazine rifles not of existing model together with ammunition therefor to civilian rifle clubs; and 8,617 Krag rifles and 8,287,234 cartridges have been issued under the above act.

Clubs as a rule are equipped for gallery practice, the means for which have been provided by the clubs in most cases, otherwise by patriotic citizens. Where outdoor ranges exist they have been provided in like manner, otherwise clubs make use of ranges of the National Guard and of the Army. Suitable ranges are the principal needs of many clubs.

During the calendar year 1916, fully 417 clubs reported 5,520 members qualified in the militia course—2,653 marksmen, 1,475 sharpshooters, and 1,392 expert riflemen.

In May, 1917, the issue of ordnance stores to all civilians was suspended during the war by the department. This has naturally curtailed the activities of clubs at a time when it is believed their service in instructing citizens drafted into the Army would have been valuable to the Government, as well as an incentive to stimulate rifle practice by civilians in general. Certain clubs have, however, with a limited amount of ammunition on hand, given instruction to men subject to the draft. Applications for organization of new clubs are received and they are encouraged in the work by this office through the expression of the belief that issues will be resumed in the future. Owing to the existing emergency the furnishing of instructors to rifle clubs, as well as the method of procuring competent instructors, as contemplated in the act of Congress has been deferred.

Information as to sites available and suitable for the establishment of rifle ranges is being collected. So far but one such site has been recommended for purchase by this office. The proposed range referred to is known as the Great Piece Meadow, located in northern New Jersey, available to a very large population. An act authorizing its purchase has passed the Senate and is pending in the House of Representatives.

APPROPRIATIONS AND EXPENDITURES.

Act of Aug. 29, 1916, for the promotion of civilian rifle practice (available until expended).....	\$300,000.00
Expenditures to June 30, 1917:	
Ammunition and ordnance supplies for civilian rifle teams, national matches, 1916.....	\$17,366.09
Office director civilian marksmanship—	
Clerical service.....	903.33
Office supplies.....	146.21
Transportation.....	53.47
Total.....	18,469.10
Unexpended balance.....	281,530.90
Act of May 12, 1917, for promotion of civilian rifle practice (available until expended).....	20,000.00
Fiscal year 1918, for arms, ammunition, targets, and other accessories for target practice.....	300,000.00

Of this last amount, \$60,000 shall be available for transportation of teams to the national match.

As the national matches for 1917 have been canceled, and owing to the suspension of issues of ordnance stores to civilian institutions during the war, it is quite probable that no part of this latter appropriation will be expended within the year. It is therefore recommended that the same amount be made available for the fiscal year 1919.

Col. S. W. Miller, Infantry, detached officers' list, was appointed director of civilian marksmanship December 9, 1916. He established the office December 13 and continued in charge until relieved April 27, 1917.

Maj. E. V. Bookmiller, United States Army, retired, took charge of the office June 1, 1917.

Capt. W. N. Hughes, jr., Infantry, detached officers' list, was in temporary charge of the office from April 28 to May 31, 1917.

E. V. BOOKMILLER,

*Major, United States Army, Retired,
Director of Civilian Marksmanship.*

APPENDIX B.

SMALL-ARMS FIRING BY NATIONAL GUARD ORGANIZATIONS IN FEDERAL SERVICE WHILE ON DUTY ON THE MEXICAN BORDER.

A report of target practice in the Southern Department by National Guard troops on border duty in 1916, was made by the headquarters of the Southern Department, which shows the following qualifications:

Rifle: 121 expert riflemen, 326 sharpshooters, 830 marksmen, 392 first-class men, 571 second-class men; total of 2,240.

Pistol: 9 qualified as expert pistol shots, 26 as first-class men, 82 as second-class men; total of 117.

Organizations engaging in rifle practice, with the qualifications attained, were as follows:

ENGINEER TROOPS.

Michigan, Company A (separate company): 2 sharpshooters, 10 marksmen, 10 first-class men, 13 second-class men.

Ohio, Company C: 3 marksmen, 5 first-class men, 6 second-class men.

INFANTRY.

First Arkansas, Companies A, B, C, and E: 6 marksmen, 14 first-class men, 23 second-class men.

Second Arkansas: 2 expert riflemen, 9 sharpshooters, 29 marksmen, 31 first-class men, 46 second-class men.

First Colorado: 9 expert riflemen, 37 sharpshooters, 112 marksmen, 1 first-class man, 59 second-class men.

Fifth Maryland: 46 expert riflemen, 113 sharpshooters, 217 marksmen, 66 first-class men, 74 second-class men.

Thirty-third Michigan: Companies G, I, L, and M: 3 expert riflemen, 7 sharpshooters, 26 marksmen, 32 first-class men, 37 second-class men.

First New Mexico: 11 expert riflemen, 27 sharpshooters, 111 marksmen, 77 first-class men, 66 second-class men.

Third Ohio: 7 sharpshooters, 51 marksmen, 66 first-class men, 99 second-class men.

First Tennessee: 48 expert riflemen, 127 sharpshooters, 241 marksmen, 60 first-class men, 119 second-class men.

Third Tennessee, Companies E, F, G, and H: 2 expert riflemen, 4 sharpshooters, 24 marksmen, 30 first-class men, 29 second-class men.

Companies E, F, G, and H, First Vermont, fired preliminary and record practice, but no report was rendered.

The qualifications attained in pistol practice were as follows:

FIELD ARTILLERY.

District of Columbia, first separate battalion: 5 first-class shots, 14 second-class shots.

Michigan, first separate battalion: 9 first-class shots, 47 second-class shots.

INFANTRY.

First Colorado: 1 expert pistol shot, 8 second-class shots.

First New Mexico: 8 expert shots, 12 first-class shots, 13 second-class shots.

The following troops fired over 100 rounds in special course B and later over 40 rounds in a field-firing contest: First and Second Indiana Infantry; First, Second, and Third Iowa Infantry; First and Second Minnesota Infantry; Fourth and Fifth Nebraska Infantry; First North Dakota Infantry; First Oklahoma Infantry; Fourth South Dakota Infantry; Second and Third Texas Infantry; First and Second Virginia Infantry; First Illinois Cavalry; First Squadron Iowa Cavalry.

The following troops fired over 100 rounds in special course B only: Third Indiana Infantry; Third Minnesota Infantry; First Squadron Colorado Cavalry (3 troops); Troop A, Kansas Cavalry; Troop A, Louisiana Cavalry; Troop A, New Hampshire Cavalry; Troops A and B, Oklahoma Cavalry; First Squadron, Virginia Cavalry.

The following organizations had no rifle practice on account of border conditions: Ohio engineer troops, with exception of Company C; First New York Cavalry; First Texas Cavalry (first separate squadron); first Arizona Infantry; First Arkansas Infantry, except Companies A, B, C, and E; First Delaware Infantry; Thirty-third Michigan Infantry, except Companies G, I, L, and M; Fourth Missouri Infantry; New Hampshire Infantry; Second New York Infantry; First South Dakota Infantry; Third Tennessee Infantry, except Companies E, F, G, and H; Fourth Texas Infantry; First Wyoming Infantry; Companies A, B, C, D, I, K, L, M, First Vermont Infantry.

The following organizations had no pistol practice on account of border conditions: Company A, Engineers, Michigan, Separate Company; Ohio Engineer Troops; First Separate Squadron, Iowa Cavalry; First New York Cavalry; First Separate Squadron Cavalry, Texas; First Separate Squadron Cavalry, Virginia; Battery A, Separate Battalion, Texas Field Artillery; First Arizona Infantry; First Arkansas Infantry; Second Arkansas Infantry; First Delaware Infantry; Second Iowa Infantry; Third Iowa Infantry; Fifth Maryland Infantry; Thirty-third Michigan Infantry; Fourth Missouri Infantry; New Hampshire Infantry; Second New York Infantry; First North Dakota Infantry; Third Ohio Infantry; First Oklahoma Infantry; First South Dakota Infantry; First Tennessee Infantry; Third Tennessee Infantry; Second Texas Infantry; Third Texas Infantry; Fourth Texas Infantry; First Vermont Infantry; First Virginia Infantry; Second Virginia Infantry; First Wyoming Infantry.

Thirty organizations were excused on account of border service.

The remaining National Guard organizations that were in the Southern Department during the target season of 1916 were mustered out of the Federal service and left the Southern Department before submitting a report.

APPENDIX C.

EXTRACTS FROM REPORT HEADQUARTERS SOUTHEASTERN DEPARTMENT.

OFFICE OF MILITIA AFFAIRS,
Charleston, S. C., August 31, 1917.

REPORT OF OPERATIONS OF THE OFFICE OF MILITIA AFFAIRS, HEADQUARTERS SOUTHEASTERN DEPARTMENT, FROM MAY 1 TO JUNE 30, 1917, AND FROM JULY 1 TO AUGUST 21, 1917.

The organization of the Office of Militia Affairs for the Southeastern Department was coincident with the establishment of this department on May 1, 1917.

The National Guard troops of the nine States comprised within the geographical limits of this department were divided into National Guard in Federal service and National Guard not in Federal service. They were proportioned in three divisional areas, as follows:

Thirtieth Division (old Ninth).—North Carolina, South Carolina, Tennessee.

In United States service.	Not in United States service.	Total available.
Second North Carolina Infantry. Supply Company, Third North Carolina. Companies A and B, North Carolina Engineers.	Headquarters First Brigade, North Carolina Infantry. First North Carolina Infantry. Third North Carolina Infantry, less Supply Company. First Squadron North Carolina Cavalry. 1 machine-gun troop, North Carolina Cavalry. First Battalion North Carolina Engineers, less companies A and B. First North Carolina Field Artillery. 1 motor truck company, supply train. 1 North Carolina Engineer troop. First North Carolina Field Hospital. First North Carolina Ambulance Company. Radio Company, North Carolina Signal Corps. Second South Carolina Infantry.	1 brigade North Carolina Infantry. 1 squadron North Carolina Cavalry. 1 machine-gun troop, North Carolina Cavalry. 1 battalion North Carolina Engineers. 1 regiment North Carolina Field Artillery. 1 motor truck company, supply train. 1 North Carolina Engineer train. 1 North Carolina field hospital. 1 North Carolina ambulance company. 1 North Carolina radio company.
First South Carolina Infantry. Company C, South Carolina Engineers.	Troop A, South Carolina Cavalry. Battalion South Carolina Engineers, less Company C. First South Carolina Field Hospital.	2 regiments South Carolina Infantry. 1 troop South Carolina Cavalry. 1 battalion South Carolina Engineers. 1 South Carolina field hospital.
First Tennessee Infantry..... First Tennessee Field Hospital.. First Tennessee Ambulance Company.	Second Tennessee Infantry. Third Tennessee Infantry. First Squadron Tennessee Cavalry. First Tennessee Field Artillery. Separate Company G, Tennessee. Colored Infantry.	First Brigade Tennessee Infantry less brigade headquarters. First Squadron Tennessee Cavalry. First Regiment Tennessee Field Artillery. 1 Tennessee Field Hospital. 1 Tennessee ambulance company. 1 Tennessee colored company.

Recapitulation.—Infantry: 2 brigades, less brigade headquarters; 8 regiments; 1 Tennessee company (colored). Cavalry: 2 squadrons, 2 troops. Field artillery: 2 regiments. Other troops: 2 battalions Engineers, 3 field hospital companies, 2 ambulance companies, 1 radio company.

Thirty-first division (old Tenth).—Alabama, Florida, Georgia.

In United States service.	Not in United States service.	Total available.
Headquarters First Brigade Alabama Infantry. First Alabama Infantry..... Second Alabama Infantry..... Fourth Alabama Infantry..... First Alabama Cavalry..... First Alabama Field Hospital... First Alabama Ambulance Company. 1 battalion First Florida Infantry.	Company A, Alabama Signal Corps. First Florida Infantry, less 1 battalion. Second Florida Infantry..... First Florida Field Hospital..... Third Separate Battalion Georgia Infantry.	1 brigade Alabama Infantry. 1 regiment Alabama Cavalry. 1 company Alabama Signal Corps. 1 Alabama ambulance company. 1 Alabama field hospital. 2 regiments Florida Infantry. 1 Florida field hospital. 1 brigade Georgia Infantry.
Headquarters First Brigade, Georgia Infantry. First Georgia Infantry..... Second Georgia Infantry..... Fifth Georgia Infantry..... First Battalion Georgia Field Artillery. Company A, Georgia Engineers. First Georgia Field Hospital... First Squadron Georgia Cavalry. Troop A, Georgia Cavalry.....		1 separate battalion Georgia Infantry. 1 company Georgia Engineers. 1 Georgia field hospital. 1 squadron, Georgia Cavalry. 1 separate troop, Georgia Cavalry.

Recapitulation.—Infantry: 2 brigade headquarters; 7 regiments; 1 separate battalion Georgia Infantry; 1 regiment, less 1 battalion, First Florida Infantry. Cavalry: 1 regiment, 1 squadron, 1 troop. Field Artillery: 1 battalion. Other troops: 1 company engineers, 3 field hospitals, 1 ambulance company.

Thirty-ninth division (old Eighteenth)—Arkansas, Louisiana, Mississippi.

In United States service.	Not in United States service.	Total available.
First Arkansas Infantry.....	Second Arkansas Infantry..... Third Arkansas Infantry..... Arkansas Ammunition Train..... First Arkansas Field Hospital..... First Arkansas Ambulance Company.	3 regiments Infantry. 1 ammunition train. 1 field hospital. 1 ambulance.
First Louisiana Infantry.....	First Louisiana Field Artillery, less 1 battalion.	1 regiment Louisiana Infantry.
First Battalion, First Louisiana Field Artillery.	Second Troop Louisiana Cavalry...	1 regiment Louisiana Field Artillery.
First Troop, Louisiana Cavalry.	First Louisiana Field Hospital....	2 troops Louisiana Cavalry. 1 Louisiana field hospital.
First Mississippi Infantry.....	Second Mississippi Infantry..... First Mississippi Field Artillery...	2 regiments Mississippi Infantry. 1 regiment Mississippi Field Artillery.
Company A, Mississippi Engineers.	First Squadron, Mississippi Cavalry. Second Squadron, Mississippi Cavalry. Machine Gun Troop, Mississippi Cavalry. First Mississippi Field Hospital...	2 squadrons Mississippi Cavalry. 1 machine gun troop. 1 company Mississippi Engineers. 1 Mississippi field hospital.

Recapitulation.—Infantry: 6 regiments. Cavalry: 10 troops; 1 machine gun troop. Field Artillery: 2 regiments. Other troops: 1 company engineers, 3 field hospitals, 1 ambulance company, 1 ammunition train.

Upon the establishment of this department on May 1, 1917, there were 714 officers and 14,765 men of the National Guard in Federal service. These troops, upon their return from the border in March and April, had been scattered throughout the several States of the department on guard duty. Their equipment was practically complete. During the latter part of June they were reassembled at State mobilization camps.

When this office was first organized, and practically during the entire month of May, all details pertaining to the National Guard, both in and out of Federal service, were handled by this office. Gradually most of the work that did not pertain to militia affairs was transferred to the proper offices at these headquarters, thus relieving this office of a mass of outside work which it was not prepared to handle to advantage and which served only to complicate the records kept.

During the period, May 1 to June 30, three companies of engineers, one company each from Georgia, South Carolina, and Mississippi; two batteries of Field Artillery from Georgia; and an ambulance company and field hospital from Tennessee, were mustered into the Federal service with a strength of 28 officers and 757 men. In addition, 21 medical officers and 77 men from various parts of the department were mustered in and sent to the training camps.

The strength of the federalized State troops, June 30, was 819 officers and 20,638 men—an increase by recruiting since the establishment of the department of 5,039 men.

July 1 to August 21, 1917.—Prior to the call of July 25 there were 862 officers and 22,225 men in the Federal service—an increase for July of 1,585 men. On July 25 the troops of the States of North Carolina, South Carolina, and Tennessee not already in Federal service were called and mustered in. These troops numbered 422 officers and 12,630 men.

The work of effecting the initial muster of these troops was accomplished by 27 officers of the line, Regular Army, and selected National Guard officers in Federal service, and 26 medical officers selected from those on duty with National Guard troops in Federal service and from the Medical Reserve Corps. In the performance of their duties these officers visited 79 home stations of National Guard organizations. Of the men presented for muster 12.6 per cent were rejected because of physical disability. The highest percentage of rejections for one organization was 37 per cent.

There were absent from the call of July 25, 416 men. Many of these men have reported since, and every effort is being made to locate and apprehend the others, or induce them to join their proper organizations.

The equipment of the organizations which had been on duty on the Texas border was fairly satisfactory; that of others, very poor. Practically all of the newly recognized organizations had neither clothing nor equipment.

Following the call of August 5, 1917, 367 officers and 11,907 men from the States of Alabama, Georgia, Florida, Arkansas, Louisiana, and Mississippi were mustered into the Federal service. The work of effecting this muster was accomplished by 46 officers from the Regular Army and selected officers of the National Guard in Federal service, and 45 medical officers selected from the National Guard and the Medical Officers' Reserve Corps. In the performance of their duties these officers visited 101 home stations of National Guard organizations.

Four hundred and forty-three men were absent from the draft of August 5. As in the case of the absentees from the call of July 25, many of these men have since reported and diligent search is being made for the remainder.

The reports to this office in the case of reservists joining the organizations nearest their respective homes have been very incomplete and inaccurate. From those available it appears that 187 reservists have joined the colors. Wherever reservists joined the organizations from which they were originally furloughed and a suitable vacancy existed therein at the time, the reservist was assigned to that organization. In other cases the reservists were simply attached to the organization to which they had reported and instructed to proceed to the division camp with it.

As in the case of the prior call, the equipment was found to be only fair for the organizations that had seen prior service. The newly recognized organizations were deficient in clothing and equipment.

There are now in the Federal service within the Southeastern Department 1,652 officers and 46,292 men, exclusive of the advance detachments of the National Guard from other departments now at the various divisional training camps. Both mobilizations could have been carried out more expeditiously, more efficiently, and at less expense if central mobilization points for the reception of troops had been available and fully prepared. As it was, the organizations suffered in morale and discipline through remaining under lax control at their home stations. The absence of cooking and quartering

facilities at a great majority of these home stations greatly increased the cost of maintenance of the troops.

The records of the examinations of 140 officers were received and reviewed in this office. After proper action had been taken thereon, these papers were forwarded to the Militia Bureau in Washington. Six of these records showed that the officers under examination had failed to pass. They were immediately discharged. All these examinations were of officers commissioned or advanced in grade since June 3, 1916, and were held prior to August 5, 1917.

Under instructions of the department commander there has been compiled in this office a list of the officers who, in the opinion of inspector-instructors and commanding officers, do not come up to the necessary standard of fitness and efficiency, with a view to having them appear before a properly constituted board of officers for examination. Further appropriate action has been suspended owing to some delay in obtaining from the Militia Bureau of the War Department the efficiency reports and other pertinent papers relating to these officers. These papers had not been received at the date of writing this report. The list of the Thirtieth Division comprises 40 names; that of the Thirty-first Division, 42 names; that of the Thirty-ninth Division, 33 names.

The work of this office at present consists principally in rounding up the absentees from the call and the draft and in collecting the data in connection with the call of July 25 and the draft of August 5, which, due to the fact that the great majority of the mustering and examining officers were new at the business and unfamiliar with the requirements, is very incomplete.

APPENDIX D.

Allotment Staff Corps and Departments, National Guard.¹

Staff corps and departments.	2 regiments or less.	1 brigade, 3 to 5 regiments.	2 brigades, 6 to 8 regiments.	3 brigades, 9 to 11 regiments.	4 brigades, 12 to 13 regiments.	5 brigades, 14 to 17 regiments.	6 brigades, 18 regiments or 2 divisions.
Adjutants general. ²	1 major.	1 major.	1 lieutenant colonel.	1 lieutenant colonel.	1 lieutenant colonel.	1 colonel.	1 colonel.
Inspectors general.	1 major.	1 major.	1 lieutenant colonel.	1 lieutenant colonel.	1 lieutenant colonel.	1 lieutenant colonel.	1 lieutenant colonel.
Judge advocates general.	1 major.	1 major.	1 lieutenant colonel.	1 lieutenant colonel.	1 lieutenant colonel.	1 lieutenant colonel.	1 lieutenant colonel.
Quartermaster's Corps. ³	2 majors. ³ 2 captains. 5 sergeants, first class.	2 majors. ³ 3 captains. 6 sergeants, first class.	2 lieutenant colonels. ³ 1 major. 2 captains.	2 lieutenant colonels. ³ 2 majors. 4 captains.	2 lieutenant colonels. ³ 3 majors. 5 captains.	2 colonels. ³ 1 lieutenant colonel. 4 majors. 6 captains.	2 colonels. ³ 2 lieutenant colonels. 4 majors. 8 captains.
Ordnance Department.	1 major.	1 major. 1 captain.	1 lieutenant colonel. 1 major. 1 captain.	1 lieutenant colonel. 1 major. 2 captains.	1 lieutenant colonel. 1 major. 2 captains.	1 lieutenant colonel. 1 major. 2 captains.	1 lieutenant colonel. 1 major. 2 captains.
For each regiment: Infantry, 1 sergeant, 1 private, first class; Cavalry and Engineer, 1 sergeant, 2 privates, first class; Field Artillery, 2 sergeants, 4 privates, first class; for each 12 companies Coast Artillery Corps, 1 sergeant, 2 privates, first class.							
Medical Department. ⁴	1 major. 1 first lieutenant or captain. 1 sergeant. 4 privates and privates, first class.	1 major. 2 first lieutenants or captains. 2 sergeants. 6 privates and privates, first class.	1 lieutenant colonel. 1 major. 2 first lieutenants or captains. 2 sergeants. 5 privates and privates, first class.	1 lieutenant colonel. 2 majors. 2 first lieutenants or captains. 3 sergeants, first class. 6 sergeants. 12 privates and privates, first class.	1 lieutenant colonel. 2 majors. 3 first lieutenants or captains. 4 sergeants, first class. 8 sergeants. 20 privates and privates, first class.	1 colonel. 2 majors. 4 first lieutenants or captains. 5 sergeants, first class. 10 sergeants. 24 privates and privates, first class.	1 colonel. 1 lieutenant colonel. 3 majors. 4 first lieutenants or captains. 5 sergeants, first class. 10 sergeants. 24 privates and privates, first class.

Dental Corps: 1 first lieutenant and 1 private, first class, Medical Department, for each 1,000 authorized enlisted men of the line. Veterinary Corps: 1 lieutenant (first or second) for each 3 batteries Field Artillery; 2 for each Cavalry regiment.

Chaplains: 1 to each regiment, and 1 to each 1,200 enlisted men Coast Artillery Corps.

12 companies of Coast Artillery and 1,000 enlisted men of the Medical Corps, Quartermaster Corps, and Signal Corps will be considered the equivalent of a regiment of Infantry.

Cavalry, Field Artillery, and Engineers.

1 In addition to the adjutant general of the State, who is not a member of the National Guard.

1 One authorized only as United States disbursing officer.

1 The proportion of privates, first class, to privates is 5 to 1.

1 The following quartermaster personnel will be detailed from the Quartermaster's Department for each Coast Artillery defense command of not less than 6 companies: 1 sergeant, first class, or sergeant. For each coast defense command of not less than 12 companies: 2 sergeants, first class, or sergeants.

1 In addition to those attached to combatant and belonging to sanitary units.

1 Chaplains and officers and enlisted men of the Veterinary and Dental Corps are attached to tactical units and are not of the administrative staff.

APPENDIX E.

TABLE NO. 1.—Enlisted strength of the National Guard on dates indicated.

State.	Apr. 1, 1917.			May 31, 1917.			June 30, 1917.			Reserve enlisted strength, June 30, 1917.
	In Fed- eral service.	In State service.	Total.	In Fed- eral service.	In State service.	Total.	In Fed- eral service.	In State service.	Total.	
Alabama.....	3,896	315	4,181	4,649	48	4,597	5,441	46	5,487	336
Arizona.....	572	.....	572	533	.....	533	565	.....	565	26
Arkansas.....	527	685	1,192	1,089	1,641	2,730	1,304	4,715	6,019	.....
California.....	3,040	1,813	4,853	3,475	2,830	6,305	3,744	2,847	6,591	30
Colorado.....	448	842	1,290	3,455	2,145	2,600	3,555	3,365	3,950	.....
Connecticut.....	2,631	1,314	3,945	2,809	1,759	4,568	3,621	2,026	5,547	370
Delaware.....	299	245	544	315	206	521	409	614	1,023	21
District of Colum- bia.....	1,366	575	1,943	1,032	582	1,614	1,124	739	1,863	.....
Florida.....	273	1,173	1,446	415	1,216	1,631	569	2,273	2,842	.....
Georgia.....	3,443	688	4,131	4,832	776	5,628	4,979	650	5,629	15
Hawaii.....	.....	4,237	4,237	.....	3,130	3,130	.....	3,048	3,048	62
Idaho.....	966	.....	966	1,589	.....	1,589	1,629	.....	1,629	.....
Illinois.....	3,411	3,551	6,962	3,806	8,488	12,294	4,621	10,854	15,485	.....
Indiana.....	795	3,180	3,975	1,035	4,056	5,091	1,284	4,865	6,149	.....
Iowa.....	932	1,313	2,244	1,370	5,290	6,660	1,570	6,253	7,823	.....
Kansas.....	.....	1,798	1,798	.....	3,941	3,941	.....	8,144	8,144	.....
Kentucky.....	1,980	1,602	3,582	3,410	281	3,691	4,570	294	5,164	86
Louisiana.....	1,661	432	2,093	2,209	486	2,695	2,388	500	2,888	92
Maine.....	932	1,044	1,976	1,400	1,541	2,941	2,015	2,208	4,223	86
Maryland.....	2,100	1,507	3,607	2,477	2,166	4,643	2,718	2,743	5,461	45
Massachusetts.....	4,104	5,868	9,972	4,763	9,030	13,793	5,948	9,801	15,749	427
Michigan.....	877	2,846	3,723	1,235	3,455	4,690	1,616	5,281	6,897	184
Minnesota.....	1,231	2,736	3,967	1,427	3,025	4,452	1,925	2,748	4,673	53
Mississippi.....	1,192	93	1,285	1,276	441	1,717	1,443	2,965	4,438	46
Missouri.....	2,456	2,320	4,776	2,865	3,683	6,548	3,330	8,436	11,766	.....
Montana.....	559	.....	559	1,321	.....	1,321	1,510	29	1,539	.....
Nebraska.....	663	637	1,300	1,092	1,395	2,487	1,369	2,669	4,038	122
Nevada.....	.....	1,535	1,535	109	1,947	2,056	122	2,347	2,369	.....
New Hampshire.....	4,387	1,723	6,110	4,710	2,357	7,067	5,480	2,697	8,177	.....
New Jersey.....	719	.....	719	751	.....	751	1,276	.....	1,276	.....
New Mexico.....	7422	17,845	25,267	7,804	20,982	28,786	9,900	24,859	34,859	1,702
New York.....	849	2,438	3,287	1,199	3,362	4,561	1,248	4,066	5,943	116
North Carolina.....	118	253	371	371	380	751	521	1,765	2,286	.....
North Dakota.....	2,396	6,039	8,437	2,851	9,205	12,056	4,063	15,595	19,658	.....
Ohio.....	559	73	632	1,133	596	1,729	1,343	862	2,195	65
Oklahoma.....	1,197	1,097	2,294	1,942	1,958	3,900	1,931	2,253	4,184	56
Oregon.....	3,940	10,188	14,128	4,860	12,504	17,364	5,511	15,839	21,350	.....
Pennsylvania.....	410	1,768	2,178	437	2,586	3,023	458	2,914	3,372	49
Rhode Island.....	991	1,466	2,457	1,362	1,740	3,132	1,564	2,062	3,626	.....
South Carolina.....	282	617	899	420	2,367	2,787	607	2,886	3,493	.....
South Dakota.....	1,031	2,344	3,375	1,403	1,557	2,960	1,901	3,155	5,056	43
Tennessee.....	3,706	641	4,347	3,544	735	4,279	3,922	7,845	11,767	118
Texas.....	.....	613	613	.....	896	896	.....	1,358	1,358	.....
Utah.....	923	848	1,771	1,066	7	1,073	1,548	10	1,558	.....
Vermont.....	2,341	1,525	3,866	2,700	1,927	4,627	3,164	1,879	5,043	126
Virginia.....	1,373	1,134	2,407	1,368	1,954	3,322	1,510	2,186	3,696	.....
Washington.....	2,116	883	2,999	2,632	.....	2,632	3,247	18	3,265	115
West Virginia.....	1,373	3,286	4,659	1,406	5,926	7,334	1,648	7,073	8,721	.....
Wisconsin.....	198	186	384	395	522	917	451	1,148	1,599	45
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	76,713	97,266	174,008	98,006	185,119	228,426	111,962	191,619	303,581	4,443

APPENDIX E.

TABLE No. 2.—*National Guard organizations in Federal service on June 30, 1917.*

State.	Organization.	Retained or date called.
Alabama.....	First Infantry.....	Retained.
	Second Infantry.....	Do.
	Fourth Infantry.....	Do.
	First Cavalry.....	Do.
	Ambulance Company No. 1.....	Mar. 27, 1917.
	Field Hospital Company No. 1.....	Retained.
Arizona.....	First Infantry.....	Do.
Arkansas.....	do.....	Mar. 31, 1917.
California.....	Second Infantry.....	Mar. 25, 1917.
	Fifth Infantry.....	Do.
	Seventh Infantry.....	Do.
	Fifth Company, Coast Artillery Corps.....	Apr. 12, 1917.
	Eighth Company, Coast Artillery Corps.....	Do.
	Thirteenth Company, Coast Artillery Corps.....	Do.
	Fourteenth Company, Coast Artillery Corps.....	Do.
	Fifteenth Company, Coast Artillery Corps.....	Do.
	Eighteenth Company, Coast Artillery Corps.....	Do.
	First Separate Battalion of Infantry.....	Retained.
	Second Separate Battalion of Infantry.....	Do.
Colorado.....	First Infantry.....	Mar. 25, 1917.
Connecticut.....	Second Infantry.....	Mar. 28, 1917.
	Battery E, Field Artillery.....	Mar. 29, 1917.
	Battery F, Field Artillery.....	Do.
	Second Company, Coast Artillery Corps.....	Apr. 2, 1917.
	Fourth Company, Coast Artillery Corps.....	Do.
	First Separate Battalion of Infantry.....	Mar. 31, 1917.
Delaware.....	Third Infantry.....	Mar. 25, 1917.
District of Columbia.....	First Separate Battalion of Infantry (colored).....	Mar. 31, 1917.
Florida.....	First Separate Battalion of Infantry.....	Apr. 12, 1917.
Georgia.....	First Infantry.....	Retained.
	Second Infantry.....	Do.
	Fifth Infantry.....	Do.
	Second Separate Squadron of Cavalry.....	Do.
	Troop A (Separate), Cavalry.....	Do.
	First Separate Battalion Field Artillery (less Battery A).....	June 22, 1917.
	Battery A, First Separate Battalion, Field Artillery.....	Mar. 30, 1917.
	Company A, Engineers.....	June 20, 1917.
	Second Infantry.....	Mar. 25, 1917.
	Field Hospital Company No. 1 (mustered into Federal service June 30, 1917), added to call of.....	Do.
Illinois.....	First Brigade headquarters.....	Do.
	Second Brigade headquarters.....	Do.
	First Infantry.....	Do.
	Second Infantry.....	Do.
	Third Infantry.....	Do.
	Fourth Infantry.....	Do.
	Fifth Infantry.....	Do.
	Sixth Infantry.....	Do.
	Seventh Infantry.....	Do.
	Eighth Infantry (colored).....	Do.
Indiana.....	First Field Artillery.....	June 25, 1917
	Company A, Engineers.....	June 20, 1917
	Second Infantry.....	Mar. 25, 1917
	First Battalion, First Field Artillery.....	June 22, 1917
	Company B, Engineers.....	June 20, 1917
	First Ambulance Company.....	June 2, 1917
Iowa.....	First Field Hospital Company.....	Do.
	First Infantry.....	Mar. 25, 1917
	First Separate Battalion, Field Artillery.....	June 22, 1917
	Company A, Engineers.....	June 20, 1917
Kansas.....	Company A, Engineers.....	Do.
Kentucky.....	First Infantry (less Company A).....	Retained.
	Company A, First Infantry.....	Apr. 12, 1917
	Second Infantry.....	Do.
	Third Infantry.....	Do.
Louisiana.....	First Infantry.....	Mar. 31, 1917
	First Separate Troop of Cavalry.....	Do.
	First Separate Battalion, Field Artillery.....	Apr. 10, 1917
Maine.....	Second Infantry.....	Apr. 12, 1917
Maryland.....	Fourth Infantry.....	Mar. 25, 1917
	Fifth Infantry.....	Apr. 12, 1917
Massachusetts.....	Second Infantry.....	Mar. 25, 1917
	Sixth Infantry.....	Mar. 20, 1917
	Ninth Infantry.....	Mar. 25, 1917
	Company B, Engineers.....	June 20, 1917
	Thirty-third Infantry.....	Retained.
Michigan.....	Company A, Engineers.....	June 20, 1917

TABLE No. 2.—*National Guard organizations in Federal service on June 30, 1917—Continued.*

State.	Organization.	Retained or date called.
Minnesota.....	First Infantry.....	Mar. 25, 1917
	First Field Artillery.....	June 22, 1917
Mississippi.....	First Infantry.....	Mar. 27, 1917
	Company A, Engineers.....	June 20, 1917
Missouri.....	First Infantry.....	Mar. 25, 1917
	Third Infantry.....	Do.
	First Field Hospital Company.....	June 2, 1917
Montana.....	Second Infantry.....	Mar. 25, 1917
Nebraska.....	Fourth Infantry.....	Do.
New Hampshire.....	First Company, Coast Artillery Corps.....	Apr. 12, 1917
New Jersey.....	First Infantry.....	Mar. 25, 1917
	Second Infantry.....	Mar. 28, 1917
	Fourth Infantry.....	Apr. 12, 1917
	Fifth Infantry.....	Mar. 25, 1917
	Companies A and C, Engineers.....	June 20, 1917
New Mexico.....	First Infantry.....	Apr. 21, 1917
	Battery A, Field Artillery.....	Do.
New York.....	Second Infantry.....	Mar. 25, 1917
	Third Infantry.....	Apr. 12, 1917
	Twenty-third Infantry.....	Mar. 30, 1917
	Forty-seventh Infantry.....	Do.
	Seventy-first Infantry.....	Mar. 25, 1917
	Seventy-fourth Infantry.....	Mar. 28, 1917
	First Squadron, First Cavalry.....	Mar. 30, 1917
	First Field Artillery.....	June 22, 1917
	Second Field Artillery.....	June 23, 1917
	Company A, Twenty-second Regiment Engineers.....	June 20, 1917
North Carolina.....	Second Infantry.....	Retained.
	Supply Company, Third Infantry.....	Do.
North Dakota.....	Companies A and B, Engineers.....	Do.
Ohio.....	Second Battalion, First Infantry.....	Mar. 25, 1917
	Third Infantry.....	Retained.
	Sixth Infantry.....	Do.
	First Separate Battalion, Field Artillery.....	Do.
	First Battalion, Engineers.....	Do.
	Separate Company D, Engineers.....	Do.
	First Battalion, Signal Corps.....	Do.
Oklahoma.....	First Infantry.....	Mar. 31, 1917
Oregon.....	Third Infantry.....	Mar. 25, 1917
Pennsylvania.....	First Infantry.....	Do.
	Third Infantry.....	Do.
	Thirteenth Infantry.....	Retained.
	Eighteenth Infantry.....	Apr. 12, 1917
	Battery E, Third Field Artillery.....	Retained.
	Company B, Engineers.....	June 20, 1917
Rhode Island.....	Second, Fifth, Twelfth, and Fifteenth Companies, Coast Artillery Corps.....	Mar. 31, 1917
South Carolina.....	First Infantry.....	Apr. 12, 1917
	Company C, Engineers.....	June 20, 1917
South Dakota.....	Third Battalion, Fourth Infantry.....	Mar. 25, 1917
Tennessee.....	First Infantry.....	Apr. 12, 1917
	First Ambulance Company.....	June 2, 1917
	First Field Hospital Company.....	Do.
Texas.....	Second Infantry.....	Mar. 31, 1917
	Third Infantry.....	Do.
	Fourth Infantry.....	Do.
	First Separate Squadron, Cavalry.....	Do.
	Company B, Engineers.....	June 20, 1917
Vermont.....	First Infantry (less Company B).....	Apr. 2, 1917
	Company B, First Infantry.....	Mar. 25, 1917
Virginia.....	Second Infantry.....	Mar. 25, 1917
	Fourth Infantry.....	Apr. 2, 1917
	First Separate Squadron, Cavalry.....	Retained.
	First Separate Battalion, Field Artillery.....	June 22, 1917
	Battery D, Field Artillery.....	Apr. 2, 1917
	First and Second Companies, Coast Artillery.....	Do.
Washington.....	Second Infantry.....	Mar. 25, 1917
West Virginia.....	First Infantry.....	Mar. 28, 1917
	Second Infantry.....	Apr. 2, 1917
Wisconsin.....	Third Infantry.....	Mar. 25, 1917
Wyoming.....	Second Separate Battalion Infantry.....	Mar. 25, 1917

APPENDIX E.

TABLE No. 3.—*National Guard organizations not in the Federal service on June 30, 1917.*

	War strength	Total
83 regiments of Infantry at.....	2,002	186,186
4 battalions of Infantry at.....	600	2,400
19 companies of Infantry at.....	150	2,850
4 regiments of Cavalry at.....	1,457	5,948
10 squadrons of Cavalry at.....	420	4,200
24 troops of Cavalry at.....	105	3,255
9 regiments of Field Artillery at.....	1,267	11,406
2 battalions of Field Artillery at.....	570	1,140
20 batteries of Field Artillery at.....	190	5,510
2 regiments of Engineers at.....	1,038	2,076
1 battalion of Engineers at.....	400	400
18 companies of Engineers at.....	164	2,932
6 battalions of Signal Corps at.....	245	1,470
15 companies of Signal Corps at.....	75	1,125
24 ambulance companies at.....	150	5,100
42 field hospital companies at.....	90	3,360
157 companies of Coast Artillery Corps at.....	109	17,113
12 bands, Coast Artillery Corps, at.....	30	300
Total.....		176,867

ORGANIZATIONS IN PROCESS OF FORMATION.

13 regiments of Infantry at.....	2,002	26,026
2 battalions of Infantry at.....	600	1,200
9 companies of Infantry at.....	150	1,350
2 headquarters companies (Infantry) at.....	58	116
2 supply companies (Infantry) at.....	37	74
1 machine-gun company (Infantry) at.....	74	74
3 squadrons of Cavalry at.....	420	1,260
12 troops of Cavalry at.....	105	1,260
4 headquarters troop (Cavalry) at.....	85	340
4 supply troops (Cavalry) at.....	51	304
4 machine-gun troops (Cavalry) at.....	91	364
11 regiments of Field Artillery at.....	1,267	13,937
2 battalions of Field Artillery at.....	570	1,710
11 batteries of Field Artillery at.....	190	2,090
2 headquarters companies (Field Artillery) at.....	92	276
2 supply companies (Field Artillery) at.....	35	105
15 companies of Engineers at.....	164	2,400
2 battalions of Signal Corps at.....	245	490
5 companies of Signal Corps at.....	75	375
2 ambulance companies at.....	150	450
7 field hospital companies at.....	80	560
9 companies of Coast Artillery Corps at.....	109	951
2 supply trains at.....	301	602
2 ammunition trains at.....	631	1,893
2 Engineer trains at.....	166	496
Total.....		58,095
Aggregate.....		235,562
Strength of National Guard not in Federal service on June 30, 1917.....		189,717
Shortage.....		45,845

TABLE NO. 4.—*Maximum strength of National Guard organizations drafted into Federal service Aug. 5, 1917.*

	Officers.	Enlisted men.
2 division headquarters.....	48	60
5 division headquarters troops.....	15	465
36 brigades of Infantry.....	6,192	216,756
35 regiments of Infantry.....	1,960	70,070
2 battalions of Infantry.....	28	1,200
46 companies of Infantry.....	138	6,800
4 machine-gun companies, Infantry.....	16	296
7 regiments of Cavalry.....	413	10,640
20 squadrons of Cavalry.....	280	8,400
6 machine-gun troops.....	24	646
5 troops of Cavalry.....	15	525
2 brigade headquarters, Field Artillery.....	8	30
32 regiments of Field Artillery.....	1,504	41,280
4 battalions of Field Artillery.....	68	2,280
12 batteries of Field Artillery.....	60	2,280
1 regiment of heavy Field Artillery.....	51	1,521
5 regiments of Engineers.....	185	5,305
14 battalions of Engineers.....	196	6,966
2 companies of Engineers.....	8	328
10 battalion headquarters, Signal Corps.....	140	160
17 wire companies, Signal Corps.....	51	1,275
17 radio companies, Signal Corps.....	51	1,275
11 outpost companies, Signal Corps.....	55	525
35 ambulance companies.....	175	5,250
46 field hospitals.....	276	3,680
4 headquarters and military police.....	52	1,276
6 ammunition trains.....	108	4,104
5 supply trains.....	40	1,620
5 engineer trains.....	20	530
3 sanitary trains.....	147	2,634
2 field bakery companies.....	4	122
17 headquarters, Coast Artillery.....	207	581
12 bands, Coast Artillery.....	.....	260
186 companies, Coast Artillery.....	558	20,274
Total.....	13,063	419,834

TABLE No. 5.—Results of small-arms practice, Organized Militia, season 1916—Rifle firing—Organized Militia course—Classification.

State, Territory, or District.	Expert riflemen.	Expert holdovers.	Sharpshooters.	Marksmen.	First-class men.	Second-class men.	Unqualified, who fired and completed instruction course.	Unqualified, who fired but failed to complete instruction course.	Total firing range practice.	Unqualified, who failed to fire.	Unclassified.	Total borne on rolls during target practice.	Total qualifying in long-range practice.	Total qualifying in gallery practice.	Total firing previous course.	Pistol firing—Classification.				Unclassified.
																Expert pistol shots.	First-class men.	Second-class men.	Unqualified.	
Alabama.....	127	96	22	201	185	63	176	330	1,240	726	261	2,143	34	498	649		9	2	4	61
Alaska.....																				
Arizona.....																				
Arkansas.....	224		30	473	260	96	1,529	100	1,529	1,176		3,635		231	249		21	18	64	101
California.....	15	38	25	102	102	25	1,580	106	1,580	331	167	2,119		457	466		2	7	10	400
Colorado.....	55		109	187	151	48	1,580	901	1,580	331	167	2,119		457	466		2	6	52	131
Connecticut.....	70		99	265	400	143														
Delaware.....																				
District of Columbia.....	40		41	42	13	1		5	357	412	127	708		952			1	6	6	1
Florida.....									1,452	623	98	2,202		952				6	6	
Georgia.....																				
Hawaii.....																				
Idaho.....																				
Illinois.....	149	54	122	115	303	33		678	1,452	623	98	2,202		952				6	6	
Indiana.....																				
Iowa.....									763	1,039	270	2,516		1,411	789		1	6	6	
Kansas.....	111	64	131	178	100	94		43												
Kentucky.....																				
Louisiana.....																				
Maine.....																				
Maryland.....	89	30	228	417	142	110		187	1,438	194		1,704		255	285			6	17	68
Massachusetts.....	254	445	388	651	91	45		41	1,554	339	354	2,647		989	1,306		33	32	21	344
Michigan.....																				
Minnesota.....																				
Mississippi.....	28		66	202	192	106		651		102										199
Missouri.....																				
Montana.....																				
Nebraska.....																				
Nevada.....																				
New Hampshire.....																				
New Jersey.....	570	11	530	984	529	72		624	2,355	463	60	2,878		2,926	3,042		2	16	51	15
New Mexico.....																				
New York.....	316	555	516	1,106	990	844		599	9,465	579	106						10	3	4	
North Carolina.....	46		47	142	28	52		471												
North Dakota.....																				
Ohio.....	93		110	192	158	53		145												
Oklahoma.....																				
Oregon.....	127	96	22	201	185	63		176	1,240	726	261	2,143		498	649		9	2	4	61
Pennsylvania.....																				

Rhode Island.....	101	4	228	317	231	18	74	1,173	783	310	2,065	700	786	5	55	66	757	.....
South Carolina.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
South Dakota.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Tennessee.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Texas.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Utah.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Vermont.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Virginia.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Washington.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
West Virginia.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wyoming.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	2,360	1,327	3,095	5,610	3,914	1,874	9,034	3,967	23,066	7,155	1,827	22,617	7,807	7,472	95	173	444	2,709

1 Brief report.

2 In Federal service; none held.

3 Report incomplete.

4 No report.

5 None held.

6 No National Guard.

7 In Federal service. Practice held, but no report made.

8 In Federal service; not complete.

9 In Federal service.

10 None held except by Fourth Infantry, of which no report was made.

11 In Federal service. Partially held, but no reports rendered.

TABLE No 6.—*Disbursements under available appropriations during the fiscal year 1917.*

Under section 1661, Revised Statutes (arming and equipping the militia)	\$42,805. 22
Under section 67, act of June 3, 1916 (arming, equipping, and training the National Guard, 1917)	2,558,184. 98
Under section 83, act of June 3, 1916 (arms, uniforms, equipment, etc., for field service, National Guard, 1917)	2,873,249. 14
Ranges for Field Artillery target practice, National Guard, 1917	300,000. 00
Supplying and exchanging Infantry equipment, National Guard, 1917	400,000. 00
Encampment and maneuvers, Organized Militia, 1916-17	181,955. 67
Special appropriation for procurement of Field Artillery matériel	2,520,000. 00

TABLE No. 7.—*Appropriation "Arming, equipping, and training the National Guard, 1917"—Expenditures by subappropriations.*

Subappropriation.	Amount available.	Amount expended.	Deficit.	Balance.
Purchase of horses for mounted units	\$50,000.00	Nil.	.....	\$50,000.00
Procurement of forage, bedding, etc., for horses	480,000.00	\$101,117.11	.....	378,882.89
Compensation of help for care of matériel, animals, and equipment	331,790.00	283,770.33	.....	48,019.67
Expenses, camps of instructions	500,000.00	211,619.46	.....	288,380.54
Expenses, selected officers and enlisted men, military service schools	50,000.00	39,880.59	.....	10,119.41
Pay and allowances of officers, National Guard, Militia Bureau	12,000.00	1,150.00	.....	10,850.00
Pay of property and disbursing officers for the United States	44,150.00	30,737.78	.....	13,412.22
General expenses, equipment, and instruction, National Guard	2,020,499.79	1,701,958.94	.....	318,540.85
Travel of Federal officers making inspections	37,500.00	28,989.79	.....	8,510.21
Travel of Federal officers and National Guard officers changing stations	17,500.00	8,704.24	.....	8,795.76
Travel of Federal officers on visits of instruction	50,000.00	12,781.41	.....	37,218.59
Travel of Federal officers connected with camps of instruction	30,000.00	100.00	.....	29,900.00
Inspection of target ranges, etc	1,000.00	309.84	.....	690.16
Inspection of matériel, Field Artillery and Signal Corps	2,000.00	1,800.00	.....	200.00
Transportation of supplies	125,000.00	42,997.48	.....	82,002.52
Expenses, sergeant-instructors	80,000.00	37,265.50	.....	42,734.50
Office rent, inspector-instructors	12,500.00	2,491.26	.....	10,008.74
Expenses, Militia Bureau	4,000.00	6,280.68	\$2,280.68	.....
Salaries, Militia Bureau	40,800.00	46,311.57	.....	3,488.43
Total	3,807,739.79	2,558,184.98	2,289.68	1,341,844.49
Deficit .....	.....	.....	.....	2,289.68
Net balance .....	.....	.....	.....	1,339,554.81

TABLE No. 8.—Statement by States of expenditures under the subappropriations enumerated under the general appropriation, "Arming, equipping, and training the National Guard, 1917," not apportioned to States.

State, Territory, or District of Columbia.	Procurement of forage, bedding, etc., for horses.	Compensation of help for care of material, animals, and equipment.	Expenses, camps of instruction.	Expenses, selected officers and enlisted men, military schools.	Pay of property and disbursing officers for the United States.	Transportation of supplies.
Alabama.....	\$540.06	\$1,583.00	\$26,000.00	\$57.40	\$333.32	\$1,886.06
Arizona.....						4.30
Arkansas.....				600.00	400.56	
California.....		13,955.32		2,208.21	305.54	2,066.77
Colorado.....	2,389.48	2,561.69			291.67	308.86
Connecticut.....	5,146.24	5,245.71		875.45	1,045.10	560.00
Delaware.....					483.31	19.97
District of Columbia.....	486.40	5,909.50	2,813.20		630.00	86.41
Florida.....			746.21		503.59	218.49
Georgia.....		408.00			891.65	4.04
Hawaii.....			7,111.06		811.09	4,019.96
Idaho.....					304.16	263.89
Illinois.....	32.60	39,726.22		2,255.34	1,404.86	2,259.24
Indiana.....	1,139.38	5,994.91		2,872.34	841.67	396.43
Iowa.....	1,886.70	9,608.12		794.98	1,090.27	617.80
Kansas.....	1,238.12	3,771.00		1,250.00	655.27	703.08
Kentucky.....	1,492.65	768.00		800.00	816.65	1,345.79
Louisiana.....	5,501.94	4,971.00			402.76	324.46
Maine.....				1,442.01	423.78	709.86
Maryland.....	2,286.70	3,976.00			569.72	325.79
Massachusetts.....	620.15	25,262.00	11,451.16	3,413.76	1,267.75	1,064.61
Michigan.....	3,015.42	3,425.67		486.14	826.39	612.75
Minnesota.....	2,257.01					1,070.23
Mississippi.....					383.25	465.51
Missouri.....	1,095.83	8,321.54		777.27	812.50	2,057.47
Montana.....					320.93	644.04
Nebraska.....	255.63	1,055.20		1,332.90	635.84	560.10
Nevada.....						
New Hampshire.....	295.00	2,483.31			355.55	69.49
New Jersey.....	50.00	11,307.00	26,220.07	1,500.00	1,100.28	2,563.19
New Mexico.....		270.00		1,234.82	329.13	91.40
New York.....	27,336.32	42,321.88	77,650.35	5,582.16	1,854.15	566.80
North Carolina.....	3,860.82	1,512.00		1,081.37	786.09	158.35
North Dakota.....						397.51
Ohio.....		3,840.00	13,102.18	2,757.09	988.90	898.25
Oklahoma.....						462.49
Oregon.....	571.22	2,267.82	1,384.14	2,123.66	655.25	194.55
Pennsylvania.....	12,438.40	42,457.71	42,000.00		2,298.60	494.09
Rhode Island.....	5,464.52	10,288.83		301.14	331.59	125.56
South Carolina.....	1,410.24	1,058.00			458.87	35.33
South Dakota.....				569.92	333.34	437.24
Tennessee.....		2,440.00		1,281.62	116.67	138.35
Texas.....	685.87	2,875.99			936.10	404.63
Utah.....	5,896.93	12,824.00			347.20	529.39
Vermont.....					329.17	14.02
Virginia.....	12,657.64	3,855.48	841.09	490.84	722.24	776.61
Washington.....	1,072.84	3,261.43	2,300.00	2,265.83	479.15	3,605.38
West Virginia.....				552.67	350.00	845.93
Wisconsin.....		4,204.00		973.67	583.34	2,329.28
Wyoming.....					468.04	369.70
Miscellaneous.....						4,532.62
Total.....	101,117.11	283,770.83	211,619.46	39,880.59	30,737.78	42,997.48

¹ No National Guard.

TABLE No. 9.—Statement of issues of military stores and funds placed to credit of property and disbursing officers of the States, the Territory of Hawaii, and the District of Columbia, under the subappropriation, "General expenses, equipment, and instruction, National Guard," appropriation, "Arming, equipping, and training the National Guard, 1917," act of June 3, 1916, for the fiscal year 1917.

State, Territory of Hawaii, and District of Columbia.	Amount to credit of State.		Value of issues, fiscal year 1917.						Funds placed to credit of disbursing officers, less amounts to personal credit.	Total value of expenditures.	Balance June 30, 1917.
	Allotments, fiscal year 1917.	Refunds for lost and sold property.	Total amount available, fiscal year 1917.	Quartermaster.	Ordnances.	Signal.	Engineers.	Medical.	Publications.		
Alabama.....	\$3,967.30	\$394.25	\$4,361.55	\$1.04	\$1,000.91				\$317.66	\$1,099.61	\$2,461.94
Arizona.....	273.30	4.00	282.30	196.32	3.14	\$196.80			188.70	188.70	93.60
Arkansas.....	18,633.52	56.80	18,522.32	11,814.98	1,327.02	17.35	\$6.93	\$216.52	471.60	2,224.52	16,297.70
California.....	40,818.94		40,818.94					23,196.52	1,452.68	40,618.84	20,200.10
Colorado.....	12,036.70		12,036.70							473.88	11,562.82
Connecticut.....	39,402.94		39,402.94	13,249.63	147.33	857.88	398.72	1,194.97	644.38	21,932.88	17,460.06
Delaware.....	3,038.50	138.60	3,176.95	2.61					191.38	4,232.98	2,943.99
District of Columbia.....	8,623.71		8,623.71	131.68	363.31			2.84	433.38	5,747.64	13,317.61
Florida.....	16,945.54		17,236.79	2,706.73	542.19				645.49	3,919.18	11,408.86
Georgia.....	19,731.98		19,731.98	132.66	4,763.10	46.50	4.30	9.11	1,317.48	8,328.12	29,610.87
Hawaii.....	167,654.77		167,654.77	76,400.89	51,012.81	74.52	668.05	286.04	818.48	138,943.00	1,416.96
Idaho.....	1,677.90		1,677.90	38,278.07	5,704.57	29.36	2.15	574.07	3,693.75	5,594.26	63,861.00
Illinois.....	108,963.33		115,480.22		32.00				1,951.54	36.03	115,444.19
Indiana.....	52,335.51		52,335.51	108.96	66.10	2.15	4.05	22,200.16	991.34	18,345.43	34,000.00
Iowa.....	41,831.99		41,831.99	863.16	52.96	71.52		22,204.16	891.34	1,514.18	39,379.28
Kansas.....	258.04		258.04						320.35	1,074.63	2,288.00
Kentucky.....	2,274.52		2,274.52	57.56	11.26	1.75		1.53	311.06	311.06	7,699.65
Louisiana.....	910.65		910.65	12,667.17	14,985.05	525.75	40.62		710.73	28,536.54	7,693.40
Maine.....	26,377.61	56.48	26,344.67	2,491.10	1,522.59	108.96	2.55	21,138.69	200.78	26,960.43	572.94
Maryland.....	136,517.61	1,096.24	138,066.97	172,913.45	95,596.71	386.49	2.80	6,214.51	1,694.81	318,184.40	1,190,134.76
Massachusetts.....	27,711.52	1,197.65	28,909.17	172,913.45	95,596.71	386.49	2.80	6,214.51	1,694.81	318,184.40	1,190,134.76
Michigan.....	27,711.52		27,711.52								
Minnesota.....	27,711.52		27,711.52								
Mississippi.....	27,711.52		27,711.52								
Missouri.....	27,711.52		27,711.52								
Montana.....	27,711.52		27,711.52								
Nebraska.....	27,711.52		27,711.52								
Nevada.....	27,711.52		27,711.52								
New Hampshire.....	27,711.52		27,711.52								
New Jersey.....	27,711.52		27,711.52								
New Mexico.....	27,711.52		27,711.52								
New York.....	27,711.52		27,711.52								
North Carolina.....	27,711.52		27,711.52								
North Dakota.....	27,711.52		27,711.52								

	115,893.97	2,907.03	119,801.00	27,467.46	16,372.99	98.53	12.54	44,008.06	1,522.28	1,299.25	91,632.27	28,118.78
Ohio.....	8,180.91		8,180.91	2.47	54	5.68	3.63	7,000.00	366.54		7,366.54	811.05
Oklahoma.....	40,012.50		40,012.50	12,457.72	5,060.63	21.50	5.54	2,681.96	653.05	1,420.17	22,291.83	17,720.67
Oregon.....	131,700.02	30.79	131,730.81	103.01	286.65	723.33	498.34	7,010.91	1,670.80	121,215.00	130,313.71	1,417.10
Pennsylvania.....	45,792.16	2,499.05	51,291.21	26,389.60	12,094.15	97.50	15.54	105.43	984.15	9,619.58	50,364.58	926.63
Rhode Island.....	26,753.01		26,753.01	2,185.07	1,377.31				630.56	21,591.69	26,800.17	932.84
South Carolina.....	10,150.37		10,150.37	896.58	97.50	9.26		413.20	705.50		2,112.78	8,037.59
South Dakota.....	18,454.54		18,454.54	281.98		4.98		17,600.00	660.23		15,451.51	3.02
Tennessee.....	16,260.70		16,260.70	783.93	38.35			1.26	2,144.98	482.05	3,453.54	12,807.16
Texas.....	9,294.59		9,294.59	796.84	1,890.60			218.55	549.45	500.00	3,898.44	5,396.15
Utah.....	273.66		273.66						260.00		260.00	23.66
Vermont.....	23,749.92		23,749.92	9,337.79	1,046.54	207.32	13.68	15,981.21	1,445.18	3,535.74	31,450.46	1,299.46
Virginia.....	44,910.91		44,910.91	10,053.81	3,116.40	413.55	81.50	43.63	1,402.37	10,554.40	26,664.65	19,246.26
Washington.....	26,279.53		26,279.53	11.08	3,395.08				232.35	100.00	3,738.46	22,704.98
West Virginia.....	55,547.71	163.91	55,547.71	43,243.20	3,301.92		98.35	73.37	3,542.78	8,247.00	55,506.57	41.14
Wisconsin.....	2,377.70		2,377.70						197.04	261.70	448.74	1,928.96
Wyoming.....	17,883.40		17,883.40						1,276.49		1,276.49	16,606.91
Unallotted funds.....												
Total.....	2,000,000.00	29,499.79	2,029,499.79	637,043.48	399,938.07	19,531.22	9,745.24	378,729.09	52,605.72	299,555.28	1,701,955.94	318,540.85

1 Overdraft.

2 No National Guard.

TABLE NO. 10.—Statement of issues to the States, Territory of Hawaii, and the District of Columbia of armament and equipment under section 83, act of June 3, 1916, fiscal year 1917.

State, Territory of Hawaii, and District of Columbia.	Value of issues, fiscal year 1917.						Total.
	Quarter-master.	Ordnance.	Signal.	Engineers.	Medical.	Publications.	
Alabama.....	\$16,357.55						\$16,357.55
Arizona.....							NIL.
Arkansas.....	8,148.73		\$1,197.00			\$329.25	9,674.98
California.....	65,834.58	\$30,936.60	4,293.77	\$2,376.21	\$20,066.58		123,507.69
Colorado.....	1,186.56	13,138.94					14,325.50
Connecticut.....	62,463.55	11,460.44	3,956.75		736.27		78,617.01
Delaware.....							NIL.
District of Columbia.....	15,521.28	9,950.01	545.63	18.60	41.01		26,076.53
Florida.....	7,792.86						7,792.86
Georgia.....	7,415.89	1,726.94	130.56				9,273.39
Hawaii.....	78,202.59	50,774.95	8,680.43	3,568.61	594.04		141,730.62
Idaho.....		179.09				115.00	294.09
Illinois.....	45,703.16		4,821.25		156.80		50,681.21
Indiana.....							NIL.
Iowa.....	4,812.80					89.82	4,902.62
Kansas.....	23,492.76	1,361.87	2,493.75	1,867.93			29,216.31
Kentucky.....							NIL.
Louisiana.....	1,033.17		399.00				1,432.17
Maine.....	31,735.01		2,128.00		746.58		34,609.59
Maryland.....	75,202.19	9,011.77	825.85	386.71	2,200.00		87,626.52
Massachusetts.....	154,391.50	72,629.87	7,776.87	646.94	6,777.92	317.00	242,450.10
Michigan.....	15,400.08	7,612.17				32.50	23,044.75
Minnesota.....	4,805.86	2.86			1,749.40	501.85	7,059.97
Mississippi.....	1,426.61	159.15					1,585.76
Missouri.....	28,988.09	16.60	.80	2.00		73.50	29,080.09
Montana.....							NIL.
Nebraska.....	1,227.44		2,327.50				3,554.94
Nevada ¹							NIL.
New Hampshire.....	5,734.06		269.50				6,003.56
New Jersey.....	55,136.98	7,626.25	382.86		22,696.80	6.00	85,848.89
New Mexico.....						14.40	14.40
New York.....	241,535.47	41,480.74	4,562.50	304.94	2,057.99	75.00	290,046.64
North Carolina.....	12,604.31	1,386.49	496.74	55.80	398.95		14,942.29
North Dakota.....							NIL.
Ohio.....	52,054.98						52,054.98
Oklahoma.....					4,869.56		4,869.56
Oregon.....	31,270.02	7,926.79	1,088.01	111.60	89.52	.40	40,496.34
Pennsylvania.....	56,030.94	524.31	15,980.81		39,946.20	758.00	112,240.26
Rhode Island.....	36,168.74	1,440.97	4,921.00				42,530.71
South Carolina.....	7,489.60	3,176.94			28.00		10,694.54
South Dakota.....							NIL.
Tennessee.....	3,609.46		166.25		4,789.00	309.95	8,874.66
Texas.....	11,798.57				45.28		11,843.85
Utah.....	12,058.38						12,058.38
Vermont.....	733.96		1,356.10				2,090.06
Virginia.....	18,887.35	1,868.25	1,296.14	9.30	7,076.59		29,137.63
Washington.....	52,671.01	18,106.24	845.13	154.40	726.29	213.90	72,716.97
West Virginia.....							NIL.
Wisconsin.....	56,515.41	209,650.00	4,651.98	42.00	23,069.13		293,228.52
Wyoming.....							NIL.
Aviation.....			75,977.00				75,977.00
Type "EE" glasses, and radio tractor sets.			208,494.75				208,494.75
Self-contained base range finders, web belts, pouches and ration bags.		154,500.00					154,500.00
Trucks, for National Guard.....	400,000.00						400,000.00
Total.....	1,705,351.50	656,648.24	380,095.93	9,545.04	138,771.86	2,836.57	2,873,242.14

¹No National Guard.

TABLE No. 11.—Statement of issues of military stores, funds to credit of property and disbursing officers, and charges for lost property pertaining to the States, the Territory of Hawaii, and the District of Columbia, under the appropriation "Arming and equipping the militia," under section 1661, Revised Statutes, for the fiscal year 1917.

State, Territory of Hawaii, and District of Columbia.	Amount to credit of State.		Value of issues, fiscal year 1917.					Funds placed to credit of disbursing officer, less refunds to personal credit.	Charges for property lost and unaccounted for.	Total value of expenditures.	Balance to credit of State, June 30, 1917.
	Balance, July 1, 1916.	Credit from miscellaneous purposes.	Total amount available for fiscal year 1917.	Quarter-master.	Ord-nance.	Signal.	Engi-neers.	Medical.	Publica-tions.		
Alabama.....	\$2,335.60		\$2,335.60		\$2,034.05				\$140.30	\$2,077.09	\$258.51
Arizona.....	93.97		93.97		6.63				114.61	\$1,949.39	1,043.36
Arkansas.....	Nil		Nil	\$86.63	3.33	1,574.88		\$1.15	162.94	1,833.70	4.33
California.....	19,152.06		19,152.06		530.70			872.86	1,046.68	19,002.06	150.00
Colorado.....	2,812.20		2,812.20		29.79				134.63	1,299.33	1,512.87
Connecticut.....	2,771.31		2,771.31	3,196.14	1,054.95	7.04	\$22.65	860.64	327.64	1,267.89	8,550.65
Delaware.....	4,563.28		4,563.28	26.96	1,597.53	3.08	2.00	4.96	4.07	1,577.53	2,475.36
District of Columbia.....	563.33		563.33	280.52	1,510.95		12.00		125.33	338.47	1,516.67
Florida.....	347.32	\$295.04	642.36	71	62.53	3.33			126.45	156.26	510.84
Georgia.....	15,363.64		15,363.64	1.95					143.80	14,409.96	929.35
Hawaii.....	7.77		7.77	.38					7.07	130.50	30.52
Idaho.....	Nil		Nil		11.74				120.68	1,445.85	Nil
Illinois.....	115.68	1.06	116.74	1,516.65	1,259.66		1,637.03	4.33	161.33	1,786.18	386.11
Indiana.....	21,374.51		21,374.51	7,088.55	58.70	8.50	7.22		542.23	17,859.36	8,818.39
Iowa.....	9,502.59	14.40	9,516.99	232.76	2,201.73	806.52	634.35		1,096.24	1,511.61	5,072.61
Kansas.....	42.85		42.85	4,614.23	37.49	37.72	3.62		1,096.84	4,893.04	42.99
Kentucky.....	63.89		63.89	159.29	1.64				5.06	112.68	165.27
Louisiana.....	42,717.05		42,717.05	23,416.61	29.18	11.00	5.98		118.29	18,466.56	1,681.33
Maine.....	920.61		920.61	6.36			3.78		43.77	150.96	1,767.84
Maryland.....	626.14		626.14	25					40.84	141.20	484.94
Massachusetts.....	1,507.48		1,507.48	2,816.55	137.79	308.25			66.22	1,885.06	3,622.40
Michigan.....	253.58		253.58	239.95	1,278.64		51.09		66.22	1,438.54	1,892.12
Minnesota.....	2,692.30		2,692.30	101.25	966.19		2.35	420.00	147.07	1,199.23	1,493.07
Mississippi.....	109.26		109.26	1,093.26					45.47	1,288.08	1,397.34
Missouri.....	9,763.53		9,763.53	612.05	664.59		3.16		26.58	8,383.53	1,390.00
Montana.....	1,094.83		1,094.83	8.95	1,106.52				84.75	1,402.88	5,289.32
Nebraska.....	11,658.49		11,658.49	1.36					105.57	1,402.88	12,177.24
Nevada.....	1,287.18		1,287.18	242.30	112.69				17.22	1,512.89	8,596.00
New Hampshire.....	582.93		582.93	67.47	1,051.92		6.60	100.00	23.27	1,640.54	26.96
New Jersey.....	928.28		928.28	149.66	1,031.17	121.11			26.63	1,817.76	555.97
New Mexico.....	14,019.36		14,019.36	140.87	1,241.08			5,844.28	2,233.25	13,844.84	174.52
New York.....	191.43		191.43		37.20		1.87		17.24	1,806.27	1,000.70
North Carolina.....											

1 No National Guard.

1 Recredit.

TABLE NO. 11.—Statement of issues of military stores, funds to credit of property and disbursing officers, and charges for lost property pertaining to the States, the Territory of Hawaii, and the District of Columbia, under the appropriation "Arming and equipping the militia," under section 1616, Revised Statutes, for the fiscal year 1917—Continued.

State, Territory of Hawaii, and District of Columbia.	Amount to credit of State.		Value of issues, fiscal year 1917.					Funds placed to credit of disbursing officer, less amounts to personal credit.	Charges for property lost and unaccounted for.	Total value of expenditures.	Balance to credit of State, June 30, 1917.
	Balance, July 1, 1916	Total amount available for fiscal year 1917.	Quartermaster.	Ordinance.	Signal.	Engineers.	Medical.	Publications.			
North Dakota.....	\$990.04	\$990.04	\$254.60	\$665.66				\$32.20	\$623.04	\$6,899.08	\$7,899.12
Ohio.....	14.26	14.26		1.00				180.01		1,332.60	1,566.86
Oklahoma.....	30,086.49	30,086.49	36.22	15.94			\$10,330.44	46.27	231.88	10,466.34	19,629.15
Oregon.....	301.46	301.46	92.00	137.61				21.25		342.84	644.30
Pennsylvania.....	422.85	422.85	98.19	128.69	\$11.07		2.44	53.95		344.64	77.82
Rhode Island.....	150.53	150.53	389.96	125.70				130.99		531.59	Nil
South Carolina.....	67.89	67.89	87.78	173.73				130.99		111,732.53	11,232.11
South Dakota.....	61.14	61.14	15.45	194.60				130.99		13,263.12	25,769.45
Texas.....	12,444.88	12,444.88	15.45	194.60				130.99		26,263.24	13,701.66
Vermont.....	757.88	757.88	169.39	7.54				130.99		1,733.22	143.46
Virginia.....	520.46	520.46	8.89	21.36	4.08			130.99		376.77	143.45
Washington.....	1,036.13	1,036.13	104.12	103.68			3.16	130.99		945.56	30.77
West Virginia.....	15.20	15.20	18.91	59.18				130.99		14.70	Nil
Wisconsin.....	125.60	125.60	5.28				41.47	130.99		186.17	211.77
Wyoming.....	3,870.24	3,870.24	37.34	1.51		\$10.46	150.58	8.51		1,961.77	3,883.14
Total.....	218,336.60	218,957.42	44,256.56	10,115.98	1,231.95	1,609.55	20,551.69	2,609.89	11,335.06	42,805.22	176,152.20

1 Recredit.

TABLE No. 13.—*Statement of expenses of the Militia Bureau for the fiscal year 1917.*

By allotment for salaries of employees.....		\$48,800.00
To salaries paid.....	\$46,311.57	
Balance on hand June 30, 1917.....	3,488.43	
		<u>48,800.00</u>
By allotment for miscellaneous expenses.....		4,000.00
Furniture and fixtures.....	1,622.40	
Office supplies.....	130.99	
Stationery and supplies.....	682.58	
Printing.....	558.89	
Telegraph service.....	2,963.77	
Telephone service.....	136.98	
Publications.....	35.15	
Labor.....	11.77	
Ice.....	8.49	
Miscellaneous.....	138.66	
Overdraft.....		2,289.68
	<u>6,289.68</u>	<u>6,289.68</u>

TABLE No. 14.—*Number of sergeants of different arms of the Regular Army on duty with the several States, the Territory of Hawaii, and the District of Columbia.*

State, Territory, or District.	Infantry.	Cavalry.	Field Artillery.	Coast Artillery.	Engineers.	Signal Corps.	Sanitary troops.	Total.
Alabama.....	2	2					1	5
Arizona.....								
Arkansas.....	1						1	2
California ¹	2	1	3	1				7
Colorado.....			1					1
Connecticut ¹	2	1	1	3				7
Delaware.....								
District of Columbia.....	1		1					2
Florida.....	1							1
Georgia.....	1		1					2
Hawaii ¹	1							1
Idaho.....								
Illinois ¹	4				1			5
Indiana.....	4		1					5
Iowa ¹		1						1
Kansas.....	2							2
Kentucky.....	1							1
Louisiana.....			1					1
Maine.....				3				3
Maryland ¹			1					1
Massachusetts ¹	8	1	3	4			1	17
Michigan.....	1		1					2
Minnesota.....	3		1				1	5
Mississippi.....								
Missouri.....	1		1					2
Montana.....								
Nebraska.....								
Nevada.....								
New Hampshire.....	1		1	1				3
New Jersey.....	1		1			1		3
New Mexico.....			1					1
New York.....			1				2	3
North Carolina.....	1	1			1			3
North Dakota.....	1							1
Ohio.....	6	1	2					9
Oklahoma.....								
Oregon.....	1		1	1				3
Pennsylvania.....	2	1	2		1		1	7
Rhode Island.....		1	1					2
South Carolina ¹								
South Dakota.....								
Tennessee.....	1	1					1	3
Texas.....			1					1
Utah.....		2	1					3

¹ One Quartermaster Sergeant, Quartermaster Corps, assigned to duty at State headquarters.

TABLE NO. 14.—*Number of sergeants of different arms of the Regular Army on duty with the several States, the Territory of Hawaii, and the District of Columbia—Continued.*

State, Territory, or District.	Infantry.	Cavalry.	Field Artillery.	Coast Artillery.	Engineers.	Signal Corps.	Sanitary troops.	Total.
Vermont.....								
Virginia ¹			1			1		2
Washington.....								
West Virginia.....	1							1
Wisconsin ¹	1						1	2
Wyoming.....	2							2
Total.....	53	13	29	13	3	2	9	122

¹ One Quartermaster Sergeant, Quartermaster Corps, assigned to duty at State headquarters.

REPORT OF THE CHIEF OF COAST ARTILLERY.

927

REPORT OF THE CHIEF OF COAST ARTILLERY.

WAR DEPARTMENT,
OFFICE OF CHIEF OF COAST ARTILLERY,
Washington, October 16, 1917.

SIR: I submit herewith my annual report as Chief of Coast Artillery.

The main work of the Office of the Chief of Coast Artillery during the year may well be understood as having had to do with questions involving the best utilization of the officers and men of the Coast Artillery Corps in supplementing in the most efficient manner possible the work of the expeditionary forces in France. The Chief of Coast Artillery has indicated in a number of memoranda how, in his opinion, the commissioned and enlisted personnel of the corps might best be so utilized. He has pointed out that, in view of the fact that under the existing conditions the German fleet is held closely to its fortified base, it may be assumed that the coast cities would not be exposed to an attack by capital ships; that the only attack to be anticipated would be such as might be made by the small-caliber guns of submarines or stray raiders.

Under this assumption, it was pointed out that the personnel assigned as the manning body of the major-caliber guns might well be considered available for service in France in manning railway artillery, heavy tractor artillery, trench mortars, and antiaircraft guns.

It was pointed out further that it would be possible, without incurring any undue risk, to dismount a number of the major and intermediate guns of the coast fortifications and mount them on railway mounts or heavy motor-truck mounts for use in France.

After due consideration by and the favorable action of the General Staff, these views of the Chief of Coast Artillery were approved, and as a consequence projects have been drawn up involving the use of a considerable number of officers and enlisted personnel of the Coast Artillery for service with artillery of this type in support of the expeditionary forces abroad.

The recommendations of the Chief of Coast Artillery have also involved projects for maintaining the instruction and training of a complete manning body for the home coast defenses, with the view to being able at any time to serve the coast armament, and in addition thereto to train, in so far as practicable, a personnel capable of filling vacancies due to casualties and other causes in the Coast Artillery personnel on duty in France.

The policy of the office has further contemplated that the Coast Artillery personnel of the fortifications of Panama, Hawaii, and the Philippine Islands should not be drawn upon materially in carrying out the special projects referred to above.

With reference to the use of the Coast Artillery personnel along the lines indicated, a study of the following tables is invited:

	Officers.	Men.
Projects involving use, as far as practicable, ¹ of Regular Coast Artillery as manning body.....	1,092	33,904
Coast Artillery training unit (National Army).....	465	15,000
Coast Artillery of the National Guard.....	750	20,560
Corps and Army antiaircraft guns and trench mortars, Regulars, National Guard, or National Army.....	75	2,500
Number required for full manning details:		
(1) Officers and men of Regular Coast Artillery required to man the coast defenses of overseas possessions.....	291	6,800
(2) Officers and men of Regular Coast Artillery required to man mine defenses in United States.....	211	5,718
(3) Officers and men of National Guard and National Army required to man gun and mortar defenses of home fortifications.....	1,309	32,423
	1,811	44,950
Number of troops now available to supply full manning details:		
Regular Coast Artillery.....	Officers. 1,044	Men. 24,803
National Guard Coast Artillery.....	700	19,500
	1,744	44,303
Deficiency after full manning details have been filled.....	-67	-647
Total required by projects not completed, as given in detail above.....	1,476	46,200
Total number of additional officers and men to be supplied the Coast Artillery Corps from voluntary enlistment or National Army.....	1,543	46,847

¹ After providing for the mine defense of the United States there will be available approximately 17,000 regular Coast Artillery for these projects.

In addition there will be required the following enlisted specialists: 37 sergeant majors (senior grade), 139 sergeant majors (junior grade), 44 master electricians, 60 engineers, 455 assistant engineers, 169 electrician sergeants (first class), 112 electrician sergeants (second class), 62 firemen, 424 radio sergeants, and 89 master gunners.

The training of officers and enlisted specialists will be provided for at the following schools:

Officers:

Training school, Fort Monroe, Va.
Training school, Fort Winfield Scott, Cal.

Enlisted specialists:

School at Fort Monroe, Va.
School at Fort Winfield Scott, Cal.
School at Fort Grant, Canal Zone.
School at Fort Kamehameha, Hawaii.
School at Fort Mills, P. I.
Chauffeur school, Fort Monroe, Va. (proposed).

The Regular Coast Artillery and National Guard Coast Artillery will be kept under intensive training at the coast defenses. A special course of instruction to meet new conditions has been communicated to artillery district and coast-defense commanders.

There is no source of supply for the enlisted men except from the drafted men and volunteer enlistments. A definite policy has been recommended by the Chief of Coast Artillery for organizing and training men to meet the projects already called for from this corps. It is urged that the recommendations of the Chief of Coast Artillery be approved at the earliest practicable time, in order that the machinery for replacements may be started and results obtained.

PERSONNEL.

The authorized enlisted strength of the Coast Artillery Corps as given by General Order 62, War Department, 1917, is given in the following table:

Enlisted specialists	942
Personnel, exclusive of enlisted specialists and bands, for the several coast-defense commands, mine planters, and cable ships	28,527
Eighteen bands, organized as provided for the Engineer Band, of 30 men each	540
Total	30,009

The enlisted specialists include—

Sergeants major, senior grade	81
Sergeants major, junior grade	64
Master electricians	41
Engineers	72
Assistant engineers	275
Electrician sergeants, first class	99
Electrician sergeants, second class	99
Firemen	108
Radio sergeants	93
Master gunners	62

Total 942

The distribution of Coast Artillery personnel to coast defenses, exclusive of bands and enlisted specialists, is as follows:

Coast defenses.	First ser-geants.	Sup-ply ser-geants.	Mess ser-geants.	Ser-geants.	Cor-po-rals.	Cooks.	Me-chan-ics.	Bu-glars.	Pri-vates, first class.	Pri-vates.	To-tal.	Rat-ings al-lowed.
Portland.....	16	16	16	127	190	32	32	32	310	954	1,725	107
Portsmouth.....	3	3	3	24	36	6	6	6	60	170	326	21
Boston.....	15	15	15	119	173	30	30	30	291	894	1,617	100
New Bedford.....	2	2	2	16	24	4	4	4	42	119	219	14
Narragansett Bay.....	11	11	11	88	132	22	22	22	213	656	1,888	73
Long Island Sound.....	15	15	15	119	173	30	30	30	291	894	1,617	100
Eastern New York.....	9	9	9	71	108	18	18	18	175	536	969	60
Southern New York.....	15	15	15	120	180	30	30	30	291	894	1,620	100
Sandy Hook.....	7	7	7	53	84	14	14	14	136	417	756	47
The Delaware.....	3	3	3	64	96	16	16	16	155	477	864	53
Baltimore.....	5	5	5	40	60	10	10	10	97	298	540	34
The Potomac.....	6	6	6	48	72	12	12	12	116	358	648	40
Chesapeake Bay.....	13	13	13	103	154	26	26	26	252	774	1,400	87
The Cape Fear.....	3	3	3	24	36	6	6	6	60	170	326	21
Charleston.....	5	5	5	40	60	10	10	10	97	298	540	34
Savannah.....	5	5	5	40	60	10	10	10	97	298	540	34
Key West.....	2	2	2	16	24	4	4	4	42	119	219	14
Tampa.....	3	3	3	24	36	6	6	6	60	170	326	21
Pensacola.....	5	5	5	40	60	10	10	10	97	298	540	34
Mobile.....	5	5	5	40	60	10	10	10	97	298	540	34
New Orleans.....	4	4	4	32	48	8	8	8	78	238	432	26
Galveston.....	3	3	3	24	36	6	6	6	60	170	326	21
San Diego.....	3	3	3	24	36	6	6	6	60	170	326	21
Los Angeles.....	4	4	4	32	48	8	8	8	78	238	432	27
San Francisco.....	20	20	20	159	238	40	40	40	388	1,192	2,157	134
The Columbia.....	4	4	4	32	48	8	8	8	78	238	432	27
Puget Sound.....	16	16	16	127	190	32	32	32	310	954	1,725	107
Oahu.....	14	14	14	112	168	28	28	28	272	834	1,512	98
Manila and Subic Bays.....	21	21	21	166	248	42	42	42	407	1,262	2,262	141
Cristobal and Balboa.....	21	21	21	168	252	42	42	42	407	1,262	2,268	141
8 mine planters and 1 cable ship.....				9	18				108		135	18
Total.....	263	263	263	2,104	3,156	526	526	526	5,225	15,675	28,527	1,784

In addition there are now at coast forts approximately 700 officers and 19,500 enlisted men of the National Guard Coast Artillery Corps.

COAST ARTILLERY INSTRUCTION.

The regular Coast Artillery School for officers was discontinued about June 1, owing to the present war conditions, and the entire school plant is being utilized for training-camp instruction.

Up to the present time, approximately 2,500 candidates for commissions in the Coast Artillery have received intensive training at Fort Monroe, Va., and at Fort Winfield Scott, Cal. The entire school plant was used to good advantage in this instruction as well as the armament at these two stations. It is possible with the Coast Artillery matériel on hand to give instruction in gunnery methods now in use in the war zone and to afford the students practical instruction in field firing problems. Aeroplanes and kite balloons are used for the purpose of adjusting fire.

In order to qualify enlisted men who are now in the Coast Artillery Corps and civilians who enlisted in the Coast Artillery Corps for the period of the war, the following procedure was adopted:

(a) Enlisted specialists' schools were established at Fort Monroe, Va.; Fort Winfield Scott, Cal.; Fort Kamehameha, Hawaii; Fort Mills, P. I.; and Fort Grant, Canal Zone.

(b) The school course was changed from one year to a three months intensive training.

(c) The enlistment of draftsmen, engineers, electricians, stenographers, and radio operators from civil life was encouraged by all department and district commanders, and in addition selected men were sent to the schools from all coast defenses.

(d) Appointments will be made as vacancies occur from the graduates of the respective classes in order of merit, as established by class standing. The different positions to be filled by graduates are: Temporary electrician sergeants, temporary master gunners, temporary sergeant majors, temporary radio sergeants, and temporary assistant engineers.

The capacity of the Fort Monroe School is 50 master gunners, 110 electrician sergeants, 77 sergeant majors, and 43 radio sergeants each three months. The capacity of the other schools named above is somewhat less.

It is contemplated to modify the above policy so as to make one permanent school at Fort Monroe, Va., and one at Fort Mills, P. I., with preparatory or subschools at Fort Winfield Scott, Fort Kamehameha, and Fort Grant. By sending men to the regular schools from these subschools, it makes possible the assembly of a class of students who will be able to complete the course with practically no loss. Under the present system it has been found that about 25 per cent fail to complete the course.

A training school for chauffeurs and gas-engine experts has been recommended for Fort Monroe, Va., where there is an excellent plant in operation. It will be necessary to provide only a small amount of funds for additional apparatus and small buildings. It is estimated that the Coast Artillery Corps will need about 4,000 chauffeurs and 700 gas engine experts to handle the motor transportation pertaining to tractor-drawn artillery for service abroad.

To meet the immediate needs for filling vacancies due to casualties or other causes occurring in the units in France, a Coast Artillery training unit has been recommended. This unit is analogous to the depot brigades now used by mobile army divisions; that is, it is contemplated that the coast fortifications shall be kept fully manned, and that the instruction shall be conducted in an intensive way in each coast-defense command, with a view to providing a reservoir of trained personnel to supply all the demands that may be made for filling vacancies and in replacement of the casualties in the forces withdrawn for duty in France.

A fixed organization has been recommended for the National Guard Coast Artillery, in order that vacancies occurring therein might be filled and organizations assigned to meet best the demands of the service. It is contemplated that the National Guard personnel shall receive intensive instruction with the Regular Coast Artillery at coast fortifications. A schedule for such instruction has already been transmitted to coast-defense commanders.

A schedule for heavy artillery instruction, in addition to the other Regular Coast Artillery instruction, has been recommended and approved. This calls for intensive instruction in each coast defense in gunnery methods pertaining to heavy and railway artillery in land service. The Coast Artillery Board has devised a system of fire-control charts and devices for use of heavy and railway artillery in land service. Methods of making careful ballistic corrections for wind, atmosphere, powder, and difference in height of gun and target have long been employed in Coast Artillery gunnery, and as they are being used in almost all artillery work abroad, it is seen that Coast Artillery troops can adapt themselves very easily to heavy artillery work when called upon to do so. The above course will include field surveying; railroad surveying; gunnery methods; necessity for precise ballistic determination of firing data; methods of determining the actual range and bearing; methods which enable accurate firing to be opened at any time; methods of adjusting the center of impact at the center of the target; location of directing gun on the map; laying out the line of fire; ranging on the line of observation; cooperation of aircraft and artillery; location of datum and calibration points; determination of switch angles; use of heavy artillery in counter battery work; use of heavy artillery in bombardments; study of systems of angular measure and conversion from one to another; field artillery methods of indirect fire; theory and practice of using improvised devices where panoramic sights and B. C. instruments are not available; ammunition; composition and tests of explosives; precautions to be observed in handling and transportation of explosives; types of projectiles and their proper use; use of the gas shell; methods of ammunition supply; field fortification, including general plan of position concealment; gun positions, design, and construction of the casemated gun positions; dugouts and slit trenches, design and construction; tactical and administrative organization of artillery; tactical handling of heavy artillery in trench warfare; signaling, semaphore, wigwag, buzzer, field telephone; and also the care of troops in the field, including billeting and arrangements for sleeping, feeding, and shelter.

**INSTRUCTION OF COAST ARTILLERY PERSONNEL IN FIRE-CONTROL METHODS
FOR USE WITH HEAVY RAILWAY ARTILLERY OR FIELD ARTILLERY IN
LAND SERVICE.**

During the six weeks allotted to the instruction of candidates at Fort Monroe and Fort Winfield Scott thorough grounding in the principles of gunnery was imparted, supplemented by practical exercises upon mobile and seacoast armament. This instruction was given to 2,500 candidates for reserve officers in the Coast Artillery.

Our troops are able to use whatever guns may be assigned, big or little, and to improvise fire-control apparatus conforming to the principles of the standard fire-control apparatus for use in the field. The methods in use by the heavy artillery in France to-day vary only in detail from the methods which have been used by the United States Coast Artillery for years. The problem for landward firing is more simple than that for seaward firing, in that seacoast batteries are compelled to use the system of fire direction which will allow them to attack moving targets. A fixed target not only is a simpler objective in that it involves no apparatus for making allowances for travel, constantly varying ratios of wind components, or any system for interpolation to obtain momentary values of a rapidly changing range, but furthermore, the ballistic requirements for a long-range fire at fixed targets is, by comparison, a far less difficult problem. The stationary position of the objective permits the elimination by cancellation of the effect of unknown air currents at high altitudes, which, with the rapidly increasing ranges of the last few years, has furnished one of the most perplexing problems for all long-range and high-angle fire where the azimuth and range of the target are changing rapidly. The indirect method of fire is habitually practiced by Coast Artillery against moving targets.

It is believed that the firing at the Coast Artillery training camps was the first actual firing of heavy guns in this country according to the system now generally in use in Europe, making use of aeroplanes and kite balloons for all observations of fire. All the firing was held by indirect laying. Targets were assigned to batteries by means of the grid system, the exact location being designated by coordinates of the selected points in the grid square assigned. Deflection corrections for lateral wind component and for drift were applied to the azimuth of the target determined from the artillery board at the battery.

The tactical value of the demonstrated efficiency of our system of computing corrections before the first shot can hardly be too strongly emphasized. Not only will it minimize the expenditure of ammunition during registration, but it will permit effective fire to be opened upon any registered target without aeroplane observation—a most valuable feature for neutralization fire. In counterbattery work, and when switching, it will greatly reduce the exposure of the aeroplane during adjustment. It is felt that the result of years of training in the methods of correction for meteorological and ballistic variations will make the Coast Artillery an invaluable arm for the service of all types of heavy guns.

As an index of the consistent functioning of Coast Artillery armament, computation was made for the probable error of the mortars and for the gun batteries which fired the greatest number of shots for effect. At 8,000 yards the 12-inch mortar gives a probably error

of 23.2 yards. The 10-inch rifles, at a range of 9,100 yards, gives a probable error of 30 yards. Although it is customary abroad to register with a considerable number of shots, and to continue observation during fire for effect, it is worth noting that the mortar battery mentioned placed the center of impact of the fire for effect within 36 yards of the point aimed at, in spite of the fact that the aviator was compelled to descend before the adjustment fire of this battery was completed satisfactorily. At the 10-inch battery, with but four shots for adjustment, the center of impact of the fire for effect was placed within 16 yards of the target.

So successful was the method of computing the initial data that many times it was necessary to make fictitious corrections for the second and subsequent shots, in order to give the observers practice in making the proper corrections to put the center of impact on the target.

RESULTS OF PRACTICES.

The most striking feature connected with the practices was the illustration of the ease of conversion of our heavy Coast Artillery system of fire direction to the system universally adopted abroad. The system which had been perfected after three years of warfare in Europe is practically identical to that which has been used in our Coast Artillery since 1904, with slight modifications which relate principally to meteorological corrections and the utilization of aircraft for the observation of fire.

COAST ARTILLERY TARGET PRACTICE.

The percentages of hits in Coast Artillery target practice during 1916 are given in the following table for the major caliber guns and for the mortars. The number of practices was reduced, due to the fact that a number of Coast Artillery companies were on duty at training camps and on the Mexican border. Their preparation for practice was limited by the same causes. The number of practices for 1917 will be greatly increased, due to the assignment of National Guard Coast Artillery to coast defenses.

Yards.	14-inch rifle.			12-inch rifle.			10-inch rifle.			8-inch rifle.			12-inch mortar.		
	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.
2,000-3,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3,000-4,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4,000-5,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5,000-6,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24	6	25	24	6	25
6,000-7,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72	19	26	24	6	25
7,000-8,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	0	0	96	9	9
8,000-9,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	1	13	10	0	0
9,000-10,000.....	21	4	19	35	9	26	7	3	43	.....	.....	.....	78	13	17
10,000-11,000.....	49	13	27	74	17	23	.....	.....	.....	.....	.....	.....	24	4	17
11,000-12,000.....	49	16	33	7	0	0	.....	.....	.....	.....	.....	.....	52	11	21
12,000-13,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24	6	25
13,000-14,000.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	0	0	12	1	8
Totals.....	126	36	29	116	26	22	14	5	36	120	26	22	344	56	16

NOTE.—Mean corrected range of practice taken as the range.

COAST ARTILLERY DISTRICT COMMANDERS.

I desire to renew my recommendation of previous years that the commanding generals of Coast Artillery districts be made a part of the Coast Artillery Corps. For purposes of better administration of technical requirements of the coast fortifications, and in order that more frequent technical inspections could be made by senior Coast Artillery officers of the training and instruction of Coast Artillery personnel, a new administrative unit was established on February 15, 1913, called the Coast Artillery district. These districts consist of a grouping of the coast fortifications in such a way as to establish a unit for inspection and general supervision, adequate to the capacities as to time and attention of one senior officer. Experience has shown that the effect of the establishment of these higher units has been to produce a better coast defense and standardization as to the condition of matériel and the character of the instruction of the personnel of the several forts which constitute the Coast Artillery district. Up to the present time there have been created on the Atlantic Coast three artillery districts, namely: The North Atlantic, Middle Atlantic, and South Atlantic Coast Artillery districts; and on the Pacific Coast, the North Pacific and South Pacific Artillery districts. The coast forts of Panama constitute a separate Coast Artillery district, as do those in the Philippine Islands.

The duties of the Coast Artillery district commanders are wholly and essentially of a coast artillery nature, involving a knowledge of technical methods connected with the installation and use of guns, mortars, mines, searchlights, and range-finding equipment of coast forts. Only officers can best discharge the functions of Coast Artillery district commanders, who have risen to the higher grades of Coast Artillery through service in the lower grades.

Attention is invited to the fact that Congress has already recognized the necessity for general officers commanding Coast Artillery districts in the act of May 18, 1917, section 8, page 11:

That the President, by and with the advice and consent of the Senate, be authorized to appoint for the period of the existing emergency such general officers for appropriate grades as may be necessary for duty with brigades, divisions, and higher units by which the forces provided for herein may be organized by the President and *general officers of appropriate grades for the service of the Coast Artillery districts.*

But this provision only provides for the existing emergency, and it is urgently recommended that it be continued after the present emergency has ceased to exist.

MATÉRIEL.

FIRE-CONTROL COMMUNICATIONS.

With the passage of the urgent deficiency bill in June 1917, sufficient funds are available to supply a standard system of fire control at all batteries within the continental United States.

The amounts include the Ordnance, Engineer, and Signal Corps work and matériel. This includes the equipment for plotting rooms, battery commander stations, base end stations, all construction work pertaining to these stations, purchasing telephones, communication

lines, and the cost of installation. Included also in the unit cost per battery of the estimates is a proportionate amount for fort and fire commanders' stations, meteorological stations, tide stations, and fire-control switchboard rooms.

Boards of officers have been engaged during the past year in the development of the projects for those commands having only provisional systems of fire control, and in the review and revision of others whose standard systems were rendered obsolescent by the necessary changes in armament and changing conditions of modern coast defense, due to the rapid development of guns of all calibers, both afloat and ashore. The projects prepared by these boards have, in a considerable number of cases, been submitted, together with estimates covering the necessary supplies from all departments involved. Pending certain contemplated changes in armament, these plans have not yet been approved or put into effect.

The urgent deficiency bill also carried sufficient funds to provide the matériel for establishing communication to small stations, located near the principal fire-control stations, for use in case the present fire-control stations are destroyed, and to cover areas which are not within the field of view of the present stations. Projects of local boards of officers for such installations are being received, and fire-control equipment for these stations has been partially provided from that which had been issued to the Organized Militia.

Contracts have been made for the necessary number of horizontal base range finders and azimuth instruments, and delivery of the same has started. Contracts have also been made for the depression position finders and delivery will commence soon.

BALLOONS.

Types of observation balloons for use in conjunction with coast defenses have been secured and located at Fort Monroe, Va., and placed in the hands of the Coast Artillery Board for the development of methods in connection with coast artillery and heavy artillery gunnery.

From results obtained with actual firing and use of kite balloons at Fort Monroe during several practices, it is believed that with an experienced observer and balloons at a proper height satisfactory results can be obtained for the correction of artillery fire landward. With an Artillery officer as observer and the balloon at a height of 500 feet, which elevation was found insufficient for the range, but which was the greatest possible height with the equipment on hand, the average error in estimation of deviation was 30 yards.

BOMBPROOFING.

The urgent deficiency bill carried sufficient funds for furnishing bombproof protection to all fire-control switchboard rooms (through which fire-control cables are routed) and mining casemates.

LONG-RANGE GUNS.

Satisfactory progress has been made in the installation of guns capable of delivering the long-range fire now demanded for defense against attacks of long-range guns carried by modern battleships.

The construction of a portion of the fire-control equipment of a type permitting the furnishing of the required data for these increased ranges is now under way, and deliveries have already begun.

RADIO EQUIPMENT.

The one-fourth kilowatt radio sets of the Signal Corps table type have been installed during the year in the coast defenses of Portsmouth, the Potomac, Cape Fear, Charleston, and Tampa. All coast-defense commands are now equipped with radio equipment.

ANTI-AIRCRAFT MATÉRIEL.

Antiaircraft defense of coast-defense areas has been provided, as follows:

	Guns.
Estimates for 1917-----	72
Estimates for 1918-----	87
Urgent deficiency bill, 1917-----	318
Total-----	477

SEARCHLIGHTS.

A contract for 101 searchlights equipped with high intensity lamps has been made, and delivery thereunder will start about February and will be completed by August, 1918. Fifty searchlights already installed, from which, by reason of their location, long-range illumination is required, are also included in a contract by which their lamps will be replaced by the high intensity lamp mechanism.

25-KILOWATT SETS.

Sufficient 25 kilowatt gas-motor sets are under contract to supply the necessary power for all searchlights, including reserves and the reserve power units for the emergency use of our batteries.

TYPES OF MOUNTS FOR SEACOAST GUNS.

The question relative to the use of the disappearing type or the barbette type of seacoast gun carriages is covered in general as follows:

(a) That disappearing type of seacoast gun carriage is mechanically sound and that it can be constructed to meet satisfactorily the conditions stated by the War Department Board of Review; that is, "to admit of an elevation of approximately 30° and a motion in azimuth as great as the necessities of the site demand, taking into due consideration an attack over water or land area."

(b) That the disappearing principle should be retained for major-caliber guns in localities to which it is particularly adapted.

(c) That no one type of mount should be adopted for major-caliber guns as applicable to all cases, but that the type should depend upon the locality and the particular purpose for which the gun is mounted.

(d) That, in order that the possibilities of a modern barbette gun carriage for major-caliber guns may be determined, such a carriage

for a 50-caliber 16-inch gun be designed and constructed as promptly as present conditions will warrant.

(e) That the 6-inch gun is essentially of the rapid-fire type, and that for future construction it should have a barbette or pedestal mount instead of the disappearing carriage.

(f) That in future projects for the defense of any locality consideration should be given to the use of major-caliber guns on mobile railroad mounts.

(g) That present and future developments demand that gun carriages for major-caliber seacoast guns in fixed emplacements be designed so as to permit the gun to be fired at an elevation corresponding to its maximum effective range; to permit all-round fire; to be provided with periscopic sights; and to be provided with adequate protection against intermediate caliber projectiles and attack from the air.

The value of greater cooperation between the War and Navy Departments in the standardization of guns, mounts, and other ordnance matériel, to the end that economy, greater interchangeability and ease of replacement may be promoted, can hardly be too strongly recommended.

REVISION OF COAST-DEFENSE PROJECTS.

The War Department Board of Review has considered the most pressing requirements for seacoast fortifications of the continental United States and its over-sea possessions. It has considered the fortification of harbors of secondary importance and the transfer of part of the armament for these projects from our present coast defenses. There are now a number of these projects under way on the Atlantic and Pacific coasts, and when completed the defense of these harbors and landing beaches will be reasonably well taken care of. Some of the more important projects considered during the year are as follows:

(a) Antiaircraft projects for all coast defenses.

(b) The emplacement of long-range 12-inch guns at certain fortifications.

(c) Transfer of minor and intermediate caliber guns and 12-inch mortars from present forts to be mounted in the new projects for protection of secondary harbors and landing beaches.

COAST ARTILLERY BOARD.

The Coast Artillery Board has been engaged conducting practical experiments and tests looking to the improvement of artillery material and methods. The following are some of the more important subjects considered by the board:

(a) Ballistics, including the calculation of elevation and range tables for guns and mortars. Corrections due to moisture in powder, wind, atmosphere, tide, jump, effect of temperature on droop, effect of velocity variations, and difference in level between gun and target.

(b) A system of fire-control instruments for use with heavy railway artillery or truck artillery in land service was devised. This included a T. O. B. clock, designed to give a graphic solution of the T. O. B. problem; the elevation slide rule for obtaining the quadrant

elevation at which to set the gun, employing the horizontal range, difference of level between target and gun and the data relative to the muzzle velocity, atmospheric density and wind which are established for the locality and time of firing; the T. A. B. clock, designed to reduce the deviations signalled by an aerial observer to range and lateral deviations for the battery firing; correction book, which contains the wind component indicator, the factor charts for difference of level between gun and target, atmosphere, wind, and velocity, the range, 50 per cent zone chart, and the deflection board.

- (c) Competitive tests of coincidence range finders.
- (d) Competitive test of plotting boards.
- (e) Competitive test of predictors.
- (f) Effect of moisture in smokeless powder.
- (g) Submarine boat detectors.
- (h) Revision of ballistic tables.
- (i) Antiaircraft, fire control.
- (j) Ballistic data for foreign artillery to be used by United States troops.
- (k) Control of searchlights by signal.
- (l) Experiments with kite balloons.
- (m) Experimental firing with aeroplanes for spotting and observing.

TORPEDO DEPOT.

The torpedo depot, under the supervision of the Chief of Coast Artillery, is charged with the design, purchase, and supply of all matériel for the submarine-mine service of the Coast Artillery Corps.

During the past year this depot has continued its work of improving existing matériel and of designing new matériel to meet special requirements. In this connection a comprehensive program pertaining to the design and installation of submarine nets was carried out by this depot.

RECORD OF SERVICE AND SALIENT FEATURES OF PROGRESS.

On the 23d of next May, the undersigned retires from active service. This service has covered 43 years as an officer of Artillery. All of this time has been passed with the Artillery arm of the service except tours of duty as professor of military science and tactics at the Western Reserve College of Ohio and the Citadel Military Academy, Charleston, S. C.; one tour of duty as instructor in the department of chemistry and electricity at West Point; and three years in inaugurating, organizing and developing the Division of Militia Affairs in the Office of the Secretary of War, now the Bureau of Militia Affairs. The time of service covers the evolutionary period of coast defense, from the primitive conditions existing after the Civil War to the highly specialized technical system of to-day.

In June, 1875, when this service began, the Artillery arm was organized as Infantry. Two companies of each of the five regiments of Artillery then authorized by law were equipped as field batteries. The other companies of each regiment were assigned, as a rule, to interior stations. With the exception of the work done at the Artillery School at Fort Monroe, Va., there was little or no training or

practice with guns mounted in the fixed fortifications. The only fortifications garrisoned at that time were of the old masonry-type forts constructed prior to the Civil War. The guns mounted therein were of the muzzle-loading type, smooth-bore Rodman, and 8-inch muzzle-loading rifles converted from 10-inch Rodman guns. The only mortars were the 8-inch smooth-bore siege mortars and the 13-inch smooth-bore seacoast mortars left over from the Civil War. The methods of firing were of the most primitive character. The rate of fire was from three to five minutes between shots. The firing all took place at fixed targets. There was no fire direction or fire control as now practiced.

Notwithstanding the fact that the breech-loading rifle gun had been successfully exploited in Europe and that a 12-inch Krupp seacoast gun was a part of the exhibits at the Philadelphia Centennial of 1876, the discussion still continued in the United States as to the relative merits of the muzzle-loading versus the breech-loading types of large-caliber guns and of smooth-bores versus rifles. A sentiment prevailed in the United States until the latter part of the eighties and the early part of the nineties in favor of the muzzle-loading type. The Artillery had practically no opportunity to use rifle breech-loading guns in practice until after the Spanish War. Indeed, the initiation of the movement which has led up to our present highly specialized and efficient system of coast defense dates practically from the reestablishment and reorganization of the Coast Artillery School, Fort Monroe, Va., in June, 1900. Just as the Artillery School at Fort Monroe kept alive practically the only sparks of life of seaward defense from the Civil War period to 1900, so, since that date, has the Artillery School served as the agency for experimentation and standardization of Artillery methods, and has been instrumental in working out, in an evolutionary way, the system which we now have.

It was at the Artillery School in 1900 and 1901, in connection with the agitation represented by the so-called Artillery council, that the arguments were formulated, and discussion resulted which led up to the introduction of legislation and the passage of the law which created the position of Chief of Artillery, and, later on, to the separation of the Field Artillery from the Coast Artillery, since which time both arms of the service have moved forward toward increased efficiency by leaps and bounds. It was at the Artillery School, at this period, that the present system of fire direction and fire control, involving the accurate application of ballistic corrections for varying densities of air, varying wind conditions, varying muzzle velocity, and prediction firing were worked out. It is this system which has been independently adopted by the French and English artillerymen in land firing in France in the last year or two.

The salient features of recent progress have included—

Improvement in the care and standardization of the condition of the armament and accessories.

Improvement in the character and efficiency of target practice.

Improvement in and standardization of the methods of fire control.

Improvement in methods of making up powder charges, and increased care and precision in methods of loading, including the adoption of the single-section charge with core igniter, blending powder and the uniform powder pressures resulting therefrom.

The exploitation and development of the self-contained horizontal base range finder.

Improvements in mine equipment, including cable specifications, automatic anchors, modification of equipment for specially deep and swift waters, and self-regulating submergence mines.

The adoption of the 16-inch high-power rifle with high elevation and all-round fire as the major type gun for coast defense.

Completion of the standard equipment of the fortification and reserve power units.

Improvement in the character of the searchlight equipment involving increase of the effective range of the searchlight beam.

Standardization of the communications in coast fortifications pertaining to fire-control equipment.

Reorganization and increase in the authorized strength of the personnel of the Coast Artillery Corps.

Introduction of the unit system of command and administration for coast defense commanders.

Creation of the Coast Artillery district, as a coast artillery command.

The funds appropriated by Congress in the past have been sufficient practically to complete all fortification projects heretofore recommended by the Endicott Board and the National Coast Defense Board and to inaugurate work on the projects at Cape Henry and Rockaway Beach. They include provision, also, for the installation of a number of 12-inch guns, mounted for long-range fire, to supplement the long-range defense of our more important harbors. It may be said that the funds which Congress has appropriated for the coast defenses have been wisely expended, that we have in consequence the most formidable coast-defense armament and accessory equipment in the world. We have a personnel of sufficient size adequately to man the armament. This personnel is as highly trained and as efficient a body of artillery experts as exists in any country.

Apart from this normal duty of the Coast Artillery Corps and the high measure of efficiency which it has in the performance of that duty, it is to be pointed out that, in times of emergency such as during the present war, when the danger of seaward attack from capital ships does not exist, the Coast Artillery Corps presents itself as a body of highly disciplined soldiers having a high value for general military purposes. This aspect of the general utility of the Coast Artillery personnel is evidenced by the fact that at the present time its officers and men are serving in every branch of service, and, were the necessity to arise, this same personnel would be able to go aboard our battleships and, after a little special instruction, serve efficiently the guns mounted in the turrets and batteries of such ships.

RECOMMENDATIONS.

Looking to the future, the undersigned ventures to make the following recommendations as bearing on the increased efficiency of the coast defenses and of the Coast Artillery Corps:

It is believed that the projects for the defense of Taboga Island, off the Pacific entrance to the Panama Canal, should be carried out without further delay.

That the recommendations of Admiral Knight of the Navy for the defenses of the Montauk Point, Block Island, Cuttyhunk line should be approved and carried into execution and in connection therewith that the scheme recommended by the Board of Review for the defense of the eastern entrance of Long Island Sound at the Race should be modified, the new armament proposed for the latter being placed on the former line.

That the defenses of Admiralty Inlet, Puget Sound, should be modified so as to provide an outer line of defense from Discovery Island to Smith Island to Deception Island, providing a debouching area, for warships coming out of the inlet into the sound, well covered by coast guns.

That the defenses of the Lake Merced Reservation, Cal., should be completed at the earliest practicable date.

That the project for the defense of Rugged Island, Resurrection Bay, and Fire Island, Cook Inlet, Alaska, should be carried into effect.

That a project for the defense of Charlotte Amalie Harbor, St. Thomas, should be drawn up and executed.

The only change recommended in the administration of the Coast Artillery Corps is that proposed by my predecessor, and approved by the then Secretary of War and the Chief of Staff, of creating, by War Department order, a Coast Artillery territorial department, to include all of the coast fortifications of the United States proper and over-sea possessions, under the command of the Chief of Coast Artillery as department commander. Such a department would have the same relation to the War Department as a territorial military department of mobile troops of the Army now and heretofore has had with respect to the War Department. In this connection it would be desirable to carry out the recommendations heretofore made in recent annual reports of the Chief of Coast Artillery, that the commanding officers of Coast Artillery districts be made brigadier generals and be a part of the Coast Artillery Corps. The Coast Artillery department would then consist of the several Coast Artillery districts, each commanded by a brigadier general of Coast Artillery as Coast Artillery district commander, and the several districts would bear the same relation to the headquarters of the Coast Artillery department as brigades of the mobile Army do to the headquarters of a territorial department.

Very respectfully,

E. M. WEAVER,
Major General, Chief of Coast Artillery.

To the SECRETARY OF WAR.

**REPORT OF THE SUPERINTENDENT OF THE
MILITARY ACADEMY.**

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REPORT OF THE SUPERINTENDENT OF THE MILITARY ACADEMY.

HEADQUARTERS, UNITED STATES MILITARY ACADEMY,
West Point, N. Y., June 30, 1917.

From: The Superintendent, United States Military Academy,
To: The Adjutant General of the Army.

By order from the War Department, dated June 2, 1917, paragraph 59, Special Orders No. 127, the undersigned assumed the duties of superintendent of the United States Military Academy on June 13, 1917, relieving Maj. Gen. (then Colonel) John Biddle. Owing to his relief and prompt departure, before the end of the academic year, Col. Biddle was unable to render a report. The last previous report from the superintendent of the academy was made by Maj. Gen. (then Colonel) C. P. Townsley, dated June 30, 1916.

The operations of the academy since that date to June 30, 1917, are shown pretty fully by the accompanying reports or extracts from the reports of the heads of departments, submitted by order of Col. Biddle, dated May 21. These reports also contain suggested modifications, improvements, etc., deemed desirable by the officers in charge of the respective departments.

The official personnel of the academy on June 30, 1916, and at the same date this year is shown on the list below:

Officers and others in prominent positions on duty at the academy.

	1916	1917
Superintendent and staff.....	5	5
Professors:		
Permanent.....	7	16
By detail from the Army.....	4	14
Associate, detailed.....	2	2
Assistant, detailed.....	12	11
Commandant of cadets and tactical officers.....	15	13
Master of the sword, instructor of military gymnastics and physical culture.....	1	1
Instructors and other officers.....	68	20
Medical Corps.....	4	
Medical Corps (reserve and contract).....		4
Dental surgeons.....	2	2
Medical Corps, instructors in military hygiene (Aug. 28 to Oct. 10).....	4	4
Chaplain.....	1	1
Librarian.....	1	1
Civilian instructors of languages.....	3	2
Civilian instructors of fencing and military gymnastics.....	3	3
Teacher of music.....	1	1
Organist and choirmaster.....	1	1
Pay clerk.....	1	1
Total.....	135	82

¹ One vacancy.

² On detached service.

Number of officers relieved May and June for duty at training camps.....	42
Retired, 1 professor, no successor appointed.....	1
Relieved and no successors detailed.....	10
On duty with troops.....	1
Civilian instructor of Spanish, resigned.....	1

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THE CORPS OF CADETS.

The number of cadets under instruction at the military academy at the date of the last annual report was 762. Of this number 139 passed out by graduation on April 20. During the past academic year there have been about the usual number of cadets discharged for deficiency in studies, resignations, etc., as shown below:

Discharged for deficiency in studies.....	67
Resigned.....	24
Died.....	4
Dismissed.....	1
Dropped.....	1

The number of cadets admitted in June, 1917, was ¹ 357, which is the largest class in the history of the academy.

The status of the corps of cadets on June 30, 1917, was as shown in the following table:

First class.....	153
Second class.....	141
Third class.....	247
Fourth class.....	357

Representing a total strength of..... 898

The following shows the number of cadets admitted to the fourth class by certificate and by mental examination as a result of the March examination. A number of cadets were admitted at various dates up to June 30, and because of the large number of qualified candidates as a result of the March examination no second examination was held:

Qualified mentally and physically and admitted.....	357
Ill, to report as soon as physically able to do so.....	1
Under age, to be admitted July 3, 1917.....	2
Disqualified mentally, qualified physically.....	394
Failed to report.....	310
Qualified mentally, did not report for physical examination.....	16
Qualified physically, withdrew from mental examination.....	4
Withdrew.....	16
Qualified alternates for whom no vacancies existed.....	81
Disqualified mentally and physically.....	59
Qualified mentally, disqualified physically.....	29
Qualified mentally and physically for admission, declined appointment.....	7
Qualified physically, declined to take mental examination.....	1
Not permitted to take examination; late reporting.....	1
Failed to complete examination.....	23
Appointment canceled.....	1
Disqualified mentally, failed to report for physical examination.....	8
Disqualified physically, withdrew from mental examination.....	1
Declined appointment.....	1
Declined to take examination, qualified physically.....	2
Exempted from mental examination through inadvertence.....	1

Total nominations..... 1,315

¹ By reason of late admissions this number will be somewhat increased.

Of the total number of qualified candidates up to June 30, 184 qualified at the mental examination and 173 were admitted on satisfactory certificates from accredited educational institutions under the provisions of General Orders, No. 19, War Department, 1915.

After the admission of the fourth class 102 vacancies still remained.

In May last Col. William B. Gordon, head of the department of natural and experimental philosophy, having reached the age limit was under the operation of law retired from active service. Col. Gordon had filled the position for 16 years, besides having served 8 years as assistant professor in the same department before he became its head. During his 24 years service Col. Gordon did most excellent work. His latest work in the preparation of mechanical textbooks for use at the academy was of a very high order and will stand favorable comparison with that of the former able heads of that department. Many doubt the suitableness of Col. Gordon's later work to the necessities of cadets, thinking it too theoretical, difficult, and nonpractical. In justice to Col. Gordon it should be remembered that the same complaint has been held against the mechanical textbook of that department since 1856, and that Col. Gordon's teaching of the subject has been far more practical than that by either of his two predecessors since the above date; also, that in his treatment of the subject he has eliminated certain errors in the fundamental equations of mechanics which had escaped these predecessors and which greatly tend to simplification of the subject.

Col. Gordon's services as a member of the academic board were most valuable in many respects; uniquely so in providing a working mechanism for successfully operating academic exercises, with fairness to all departments as the classes increased in size and their duties in number and variety. After Col. Gordon's retirement Capt. Halsey Dunwoody, the senior assistant in the department, was in charge of the department for the remainder of the academic year. His report is included herewith.

BUILDINGS.

For several years past projects and estimates have been submitted to meet possible expansions of the academy. By act of Congress approved May 4, 1916, an increase in the number of cadets was authorized and directed. Since that act a board of officers was appointed for the purpose of considering and has reported as to the necessary buildings to meet compliance with the above act. This report was approved by the War Department and estimates to carry out the recommendations of the board were submitted to Congress. It is assumed that the approved program will be eventually carried out. At present the existing situation is that the present number of cadets (898) is slightly above the limit that the present facilities of the academy can accommodate in the manner heretofore accomplished and deemed necessary; this deficiency applies to both academic and military facilities, equipment, and material of all kinds used in cadet instruction, as well as to suitable spaces for camping and rooms for messing and lodging.

The graduation of the first class, already ordered to take place on August 30 next, will reduce the number of cadets to about 750 at the

beginning of the next academic term on September 1. This number can be taken care of satisfactorily with the present facilities of the academy without any material detriment to academic work until the admission of the next class, June 1918. The vacancies now open to this next class is approximately 425. Assuming that 350 candidates will be admitted next June and that the number of cadets discharged during the present academic year will be about as usual, the strength of the corps after June 1, 1918, will be approximately 1,020. This number can not be accommodated with the present barrack facilities without diminishing the space per man; with three cadets in a room instead of two the barracks will accommodate the corps up to June, 1919. The messing and camping space will be crowded, but can also be made to meet the conditions until June, 1919. If the long-established custom of two cadets to a room is to be maintained, temporary structures will have to be erected, for it is now evident that the permanent structures which have been approved and for which appropriations have been asked can not be erected in time to accommodate the corps's strength which will exist in June next. Temporary barracks of the cantonment order can be erected by the time needed, but in my opinion the situation that will exist next June may be better met by diminishing the space of barrack per man, that is, three instead of two cadets to a room.

In the report of the board, above referred to, estimates have been made and submitted to Congress for the development of the academy to accommodate 1,200 cadets, upon the basis of space heretofore allowed each cadet. In this proposed development all the necessary buildings are described, located, and their importance dwelt upon; no reference is accordingly made to specific buildings except in the case of the cadet laundry and the cadet store and tailor shop. The inadequacy of both these buildings to meet even present requirements with reasonable consideration for the workers has been frequently reported. The conditions in the former buildings (laundry) are such that the Government should have long ago taken remedial action; it is a positive wrong, verging on cruelty to subject employees to the conditions existing in that laundry in the summer. Estimates have been made and appropriations asked for several years for a laundry. An appropriation of \$100,000 was asked for the building as originally planned, and the last session of Congress appropriated \$75,000. Owing to the great increase in the cost of all building which has now come about, the building planned can not be built for double the appropriation made. In my opinion prompt action should be taken at the earliest possible moment to improve temporarily the conditions in the laundry until the new permanent building is constructed. The cadet tailors' shop is likewise entirely inadequate and inflicts unnecessary hardship upon the employees. As the new building for this purpose, in the general approved plan is combined with other buildings it will not be secured until said plan is in large part carried out; the necessary improvements in this shop should not be longer deferred. The situation can probably be best met by a frame building in the immediate vicinity. Another feature of improvement which can not wait the general plan is increased toilet facilities at the cadet encampment, which are absolutely essential by the beginning of the next encampment.

PHYSICAL TRAINING.

The instruction in this department was carried on during the year by Maj. Koehler and his assistants in the effective and satisfactory manner which has characterized this work for so many years. Maj. Koehler was placed on detached service on May 13, after which time Capt. W. H. Wilbur was in charge of this work. This officer is admirably qualified for the work and did most excellent and laborious service in the physical training of the large fourth class which fell into his hands on June 14. Capt. Wilbur as a physical trainer is second only to Maj. Koehler himself, very zealous in his work and of great energy. In the absence of Maj. Koehler, Capt. Wilbur's presence here is most valuable.

DEPARTMENT OF TACTICS.

One hundred and fifty cadets reported on June 15, 1916; 146 on July 10, and 25 on various dates between then and September 30. It is again recommended that every effort be made to have all new cadets report on the same date. This will permit the systematic military instruction of all at the same time. When this can not be done the instruction of the new cadets as well as that of the upper classes is greatly interfered with.

The detailing for duty to assist in the instruction of new cadets of five officers who had just graduated was again carried out. This policy gives excellent results and should be continued.

Due to the increased number of cadets, the camp, the barracks, the mess hall, and the gymnasium were overcrowded. All of these should be enlarged.

Additional horses for Cavalry and Field Artillery instruction are needed, also additional matériel for the latter. Additional men are needed in both the Cavalry and Field Artillery detachments.

Some of the increases referred to have already been made, but more are needed because of the increased number of cadets.

A new primary station for the seacoast batteries is needed.

The general discipline of the corps has been satisfactory. Conditions regarding the handling and treatment of fourth classmen by upper classmen are steadily improving.

The subject of field service regulations was transferred from the department of civil and military engineering to the department of tactics and placed in the second-class course.

The first class visited Fort Wright from August 20 to 27 for coast artillery practice with service charges. The results were not satisfactory, due to foggy weather. This trip will be discontinued. Better results can be obtained by subcaliber practice at West Point with the 6-inch guns and 12-inch mortars, supplemented by demonstration firing by regular batteries during the spring visit with the department of ordnance and gunnery of the class to a seacoast fortification.

The regular annual practice march could not be held, due to the Military Academy being quarantined against infantile paralysis. In place of this march short marches of two and three days' duration were substituted, camps being made on Government ground.

The general military instruction has been satisfactory. Many changes have been made with a view to concentrating the instruction,

spending more time in the field with the various arms, developing in the cadet better ability to command, the art of instructing others, and more individual initiative. Cadets have responded to these changes and many apply for voluntary instruction during the recreation hours. The general scheme is as follows:

FOURTH CLASS.

Infantry.—Theoretical: Infantry Drill Regulations. Practical: The duties of the infantry soldier in the schools of the squad and company, camping, marches, advance and rear guards, outposts, patrolling, signaling, bayonet fighting, preliminary target instruction, and interior guard duty.

Field Artillery.—Theoretical: Field Artillery Drill Regulations. Practical: Drill of the gun squad and gunners' instruction.

THIRD CLASS.

Infantry.—A continuation of the fourth class instruction to which is added duties of the squad leader, rifle practice, instruction and record course, Small-Arms Firing Manual.

Field Artillery.—Practice in duties of the cannoneer during field work and service practice, gunner's examination, driving instruction.

Coast Artillery.—Theoretical: Coast Artillery Drill Regulations. Practical: Duties of the cannoneer at 6-inch gun and 12-inch mortar drill and subcaliber practice with same.

Cavalry.—Theoretical: Cavalry Drill Regulations. Practical: School of the trooper, packing, including for the more proficient work with the pack train in the field.

SECOND CLASS.

Infantry.—The duties of the squad and platoon leader with practice in terrain, field and combat exercises.

Field Artillery.—Theoretical: Field Artillery Drill Regulations. Practical: Duties of the field artillery driver and practice in driving over varied ground; harness and draft; the use of battery instruments, and the duties of the battery detail.

Coast Artillery.—Theoretical: Coast Artillery Drill Regulations. Practical: Duties in all positions in the fire-control system and in all positions in the gun section ordinarily held by noncommissioned officers and rated enlisted men, both for 6-inch gun and 12-inch mortars.

Cavalry.—Equitation: School of the trooper, squad, and troop.

General.—Theoretical: Parts 1 and 2, Field Service Regulations.

FIRST CLASS.

Infantry.—Practical: Practice in commanding platoons and companies in various ceremonies, close and extended order drill, marches, and problems in minor tactics; tactical walks and map problems covering the above class of exercises; bombing, trench, and bayonet work.

Field Artillery.—Instruction in the use of the battery detail, selection and occupation of positions, the elements of fire, map problems, field work, and service practice; cadets acting as observers, battery detail, and drivers.

Coast Artillery.—Practical: Duties as battery commander, range and emplacement officer both at drill and subcaliber practice at 6-inch guns and 12-inch mortars; assistant instructors for second and third classmen in range and gun sections.

Cavalry.—Theoretical and practical hippology.

Practical: Equitation, school of the trooper, squad, and troop, practice in field service and exercises in minor tactics; field firing; pistol firing, covering the preliminary and record course; Small-Arms Firing Manual.

General.—For all classes—first, second, third, and fourth: Military calisthenics, gymnastics, fencing, boxing, wrestling, and swimming.

DEPARTMENT OF CIVIL AND MILITARY ENGINEERING.

The course in civil engineering began September 1, 1916, with a class membership of 139. The methods of instruction were precisely the same as in the preceding academic year.

The course was conducted by oral and written recitations and a written general review, and was completed on December 23, 1916.

The course in military engineering and the art of war was begun on January 2, 1917, with a class membership of 139, and was completed on April 14, 1917, in accordance with War Department decision to graduate the class April 20, 1917.

During the course lectures, illustrated by lantern slides, were delivered on recent wars and sieges.

As soon as the War Department determined to graduate the succeeding class in August, 1917 (which would normally have graduated in June, 1918), it was decided to give this class a short course in the first-class schedule. This class comprised at the time 153 men. The short course adopted was as follows:

The first 24 men, according to standing in natural and experimental philosophy, were given a short course in the mechanics of engineering and military engineering, without review, beginning May 7, 1917. The remainder of the class were given a short course in military engineering, beginning May 21, 1917, with a written general review of each subject. These courses were in progress at the close of the fiscal year. Lectures were given as noted in paragraph 6.

In carrying out the modified courses of instruction due to the early graduation of the second class it was found desirable and practicable to detail many of the regular instructors of the department to other duty and the instruction in the modified course was mainly given by officers detailed from other departments of instruction, all of whom rendered very satisfactory service.

DEPARTMENT OF NATURAL AND EXPERIMENTAL PHILOSOPHY:

The class of 1918 began the course in philosophy September 1, 1916, with 153 members, all of whom successfully completed the entire course.

Seventeen men reached the necessary mark for distinction. This was a percentage of 11.1 of the entire class.

The first and second sections of the second class were turned over to the department of engineering on May 12, 1917, after it had been announced that the present second class would graduate August 30, 1917. The remainder of the class took up engineering on April 21, 1917.

The retirement of Col. William B. Gordon was announced. Col. Gordon served as professor of natural and experimental philosophy from March 27, 1901, to May 7, 1917.

DEPARTMENT OF MATHEMATICS.

The fourth class course was in all respects the same as that of the previous year, alternating with surveying during the last 66 days of the academic year. The fourth class was the largest in the history of the academy having begun its studies in September with 325 members.

Examinations were held in December and June with the following results:

	Number in class.	Defi- cient.	Turned back.	Dis- charged.
December.....	308	48	0	48
June.....	254	8	3	8

The third class course was in all respects the same as that of the previous year, the prescribed course requiring recitations daily from September, 1916, to June, 1917.

Examinations were held in December, March, and June with the following results:

	Number in class.	Defi- cient.	Turned back.	Dis- charged.
December.....	147	3	1	2
March.....	141	0	0	0
June.....	140	0	0	0

The new academic year will begin in September with a fourth class in mathematics of about 370 cadets and a third class of about 250. This will make about 620 students under the supervision of the department.

DEPARTMENT OF CHEMISTRY, MINERALOGY AND GEOLOGY.

Owing to existing conditions, instruction in the department was concluded on May 18, 1917, the entire class of 153 cadets having successfully completed the course.

The progress of the routine work of the department has been satisfactory with one exception. The adoption of the three-recitation period per instructor schedule has resulted in very material reduction in the length of the laboratory period—from about 1 hour and 50 minutes to 1 hour and 20 minutes—a time too short for the thorough performance of much of the valuable laboratory work given out in past years. I see no present remedy for this.

Modification of existing regulations so that an officer detailed as instructor in any academic department of the academy should be allowed to complete the academic year upon which he had entered and should not be relieved during the course of such year would be greatly to the advantage of the academy and of the individual instructor concerned.

DEPARTMENT OF DRAWING.

The only change of importance during the year in the third-class course has been the division of the class into two sections and the adoption of an advanced course for those most proficient in the subject. Instead of employing the extra time of the more rapid and competent draftsmen of the class in extra work of the same nature as that being done by the remainder of the class, it was determined

to allow them to proceed more rapidly with the regular course and thus allow the concentration of their extra time at the end of their course in mechanical drawing on more advanced work than had hitherto been undertaken. Under this decision, approximately one-half of the class took what amounted to about one full month's work of what has heretofore been done in the second-class year. Further saving of approximately one month in second-class work will enable this portion of the class to undertake approximately two months of advanced work at the end of the course.

There is no doubt in my mind as to the advisability of continuing and extending this scheme of allowing the men to go as far as their ability will permit. Heretofore those most proficient in the subject have been held back and denied instruction that they could assimilate without increased time. Whatever sacrifice there is of the competitive feature of the course is more than counterbalanced by the higher degree of instruction given to a large portion of the class.

Sufficient record has been kept in this department to show that previous instruction in drawing is closely identified with aptitude in the subject; in other words, the cadet who has had previous instruction in drawing has as a very general rule sought that instruction because of aptitude for the work. Likewise, absence of previous instruction is in general indicative, not of lack of opportunity for instruction, but of lack of desire for such instruction based on lack of aptitude. Under any circumstances the records of the department are sufficient to show that previous instruction almost invariably results in comparatively high standing in drawing, whereas, the lower third of the class in final standing in drawing has been made up almost entirely of cadets with no previous instruction. No method of competition will alter this condition. Therefore, those having had previous instruction and possessing aptitude should be given an advanced course, proper provision being made, of course, to take care of the few cases of aptitude and no previous instruction by allowing an opportunity from time to time for transfers between advanced and regular courses when justified by the progress made.

I have arrived at the conclusion by observation of the department work that too much time has been spent in the past on technique and too little on representation. A cadet has gotten most of the value of a problem in representation, when he has made up his mind what the full representation of the object requires in the way of views and details. From the time he thereafter spends in the formal execution of the drawing he benefits in no respect except in technique, and even this benefit is small. This is true principally of work in second-class year. The third class work develops technique to something near a maximum point determined by the aptitude of the cadet. The formal execution of drawings in second-class year is therefore of little benefit beyond the initial stage when the cadet is studying the problem of representation.

Tests were made this year and as a result I am convinced that a considerable advance can be made in the instruction by doing more work in representation, i. e., requiring the cadet to submit a formal statement accompanied by sketches showing exactly the views required to represent an object fully, and then to carry to completion only an occasional one of these drawings sufficient merely to prevent

deterioration in technique. Tests of this character developed great interest on the part of the cadets.

Since the main object of the course is to develop men who can understand drawings rather than to train draftsmen, it is believed that the extension of the work along the lines indicated will make the work of the department of much greater value to the graduated cadet.

The instruction in topographic sketching has proceeded along lines similar to the previous work, but the work has shown better results, due to improvements in methods and to the systematization of the work possible as experience is gained. The final stage of the work was completed in a few attendances of longer duration due to arrangements for early graduation of the second class. The total time was not, however, shortened and the work was the best yet done.

Acknowledgment is due to the instructors of the department for their loyal support and faithful work. I am particularly indebted in this respect to Capt. Westover and Lieut. Floyd.

DEPARTMENT OF MODERN LANGUAGES.

The department had under instruction during the year: First class Spanish, 139; second class Spanish, 159, reduced to 154; third class French, 147, reduced to 142; second class French, 154, from May 19 to July 7, 1917; total at end of year, 435.

On account of the entry of the United States into war, the instruction of the second class in Spanish was dropped on May 19, 1917, and a course of instruction in French substituted therefor. The French instruction for this class consisted of a special course designed to give the cadets concerned as much of a military vocabulary as possible in the time available. The course consisted of dictations in French and conversation.

Mr. Ramon Jaen, civilian instructor of Spanish, has accepted a chair in the language department of the University of California, and will therefore sever his connections with the Military Academy. Mr. Jaen, in addition to his regular duties, during the academic year conducted a class for officers on duty at this post. It is a pleasure to testify to the satisfaction given by Mr. Jaen in his service to the department.

It is believed that a very fair proportion of the cadets under instruction have acquired, to a certain degree, the ability to converse in French and Spanish. No cadet would be helpless, if required to make his wants known, professional or personal, in either of the languages studied, and to understand average conversation. All have a working knowledge of the printed language, and most can express themselves, after a fashion, in writing.

The officers of the department have given faithful and efficient service during the year.

DEPARTMENT OF LAW.

The report for the academic year 1916-17 will naturally divide itself into two parts. This due to the fact of graduation of the class of 1917 on April 20, 1917, and the subsequent taking over by the second class of the study of law on May 21, 1917.

The class of 1917 pursued the prescribed course in elementary, constitutional, and international law, using the textbooks of previous years. The course was supplemented by lectures given by the professor of law and the instructors of the department, and in so far as the limited time available permitted the more important legal principles mentioned in the textbooks were emphasized by the study and discussion of leading cases. The course in international law was supplemented by the study of the Rules of Land Warfare.

The normal course in military law extending from January to June and including 32 recitation periods was necessarily abbreviated to 18 recitation periods. The textbook used was the *Manual for Courts-Martial, 1917*.

An increasing effort was made by the department to instill into the minds of the class the value of the practical application of legal principles to concrete facts and conditions as they may arise.

As a result of the necessary abbreviated course in military law it was found inexpedient to devote any time to lectures upon important common-law subjects usually given toward the end of the academic year by lecturers from law schools.

The course pursued by the second class since taking up the subject of law on May 21, 1917, has been devoted entirely to the study of military law using the *Manual for Courts-Martial, 1917*, as a textbook. In order to prepare the class for a better understanding on taking up the textbook this course was preceded by a series of lectures given by the instructors of the department and based on the elementary principles of law in general.

DEPARTMENT OF PRACTICAL MILITARY ENGINEERING, MILITARY SIGNALING, AND TELEGRAPHY.

The department is maintained for the outdoor instruction of cadets in the several classes of military engineering, including the execution of field fortifications and accessory works, the construction of standard and improvised types of floating and fixed bridges, the use of rigging and tackle, the making of military maps and sketches; a short though comprehensive course in surveying is pursued, followed by topographic survey of about 2 square miles of varied territory; military signaling is taught to the extent of qualification in the dispatch and receipt of semaphore and wigwag messages, and of demonstrations in all standard methods of electrical and luminous exchanges.

The general character of instruction has been similar to that of the preceding several years, adjusted, however, to accord with the advanced graduation of the class of 1917 on April 20, 1917, and the prospective graduation of the succeeding class on August 30.

The instruction of the several classes during the year may be summarized as follows:

First class.—During the summer drill period one-third of the class attended daily from July 5 to August 10 for instruction in reconnaissance. The following program was pursued:

1. Plane road traverse, 2 miles.
2. Filling in topography and details of plane traverse.
3. Position sketch.
4. Combined position sketch.

5. Road sketch, garrison to Cold Spring.
6. Combined position sketch at Congers.
7. Mounted road sketch to Fort Montgomery.
8. Mounted road sketch to crossroads, then to redoubt No. 4.
9. Combined mounted road sketch.

Second class.—This department has not ordinarily had the second class for instruction. By reason of its advanced graduation on August 30, however, a comparatively short course was arranged for the present summer, beginning June 11. Incident to the continuation of academic duties till July 7, late afternoon time only is available. During the present month this time has been devoted to instruction in the use of rigging and tackle, the construction of standard and improvised military bridges, the lifting and manipulation of heavy weights, field fortifications and demolitions. During the month of July a course of reconnaissance and sketching will be pursued.

Third class.—During the summer encampment of 1916, one-third of this class was instructed daily from 8 a. m. to noon in visual signaling, knots and lashings, use of tackle, rowing, ponton bridge building, the construction and operation of ferries, the value and use of improvised floats for stream crossings. The last four attendances were devoted to a combined topographic and hydrographic survey.

Fourth class.—From March 19 to the end of the academic year this class pursued a course in surveying, instruction alternating therein with mathematics. Twenty recitation periods were thus available for theoretical work, followed by thirteen 3-hour and 25-minute attendances devoted to a series of practical exercises.

With the advent of larger classes surveying equipment is seriously inadequate. For the past two seasons it has been possible fortunately to supplement the department's stock by the loan, through the courtesy of the Chief of Engineers, of instruments from the depot at Washington Barracks and from various engineer districts throughout the country. It can not be assumed, however, that such an arrangement will continue to be possible. It is, therefore, vitally necessary that increased appropriation be secured, sufficient to provide and maintain equipment in accord with the increased size of the classes to be instructed.

The fourth class was instructed by thirds in wigwag semaphore signaling at afternoon drills from 4 p. m. to 5 p. m.

General.—Since 1903 this department has been maintained under an annual appropriation of \$2,000. For a number of years this sum has been wholly inadequate to supply sufficient equipment and reasonable stock to meet efficiently the needs of cadet and detachment instruction and maintenance. Many desirable activities have thus necessarily been provided for by makeshift materials and under makeshift methods. The legislation of 1916 will practically double the cadet corps, with the result of an increase in all classes of maintenance charges.

The desirability is recognized of taking the cadet classes for practical instruction in surveying and reconnaissance during the summer to a more favorable area than is afforded in this vicinity. Such an area exists between here and Newburgh. Notwithstanding, however, the increased efficiencies involved, the proposition has not been practicable by reason of the lack of transportation funds.

In the attempted maintenance of trade schools for the engineer detachment during the long winter months the most meager results have been obtained, due largely to insufficient funds whereby to provide tools and stock. In addition to the items of maintenance just referred to, much permanent equipment is urgently required, especially to provide for the larger fourth classes in surveying, which will have increased from 142 in 1915 to 357 during the coming year. For the next three years \$6,000 per year should be available for this department, and about \$4,500 per year thereafter.

Signal equipment.—The Signal Corps is prompt and generous in honoring all requisitions for signal property pertaining to cadet instruction, which is accordingly maintained at a very satisfactory standard.

The United States Military Academy detachment of engineers.—This organization is authorized under the professor of practical military engineering, primarily for assistance in the instruction of the cadet corps, for the collection and maintenance of equipment and materials relating to cadet drills, and for the complete or partial fabrication of structures for demonstrations. To the completion of the latter, if time is available, cadets are assigned. In addition, it performs the usual duties of guard and police and receives practically the same instruction as obtains in other engineer organizations of the Army. The authorized strength of the detachment is 100 men. The average during the year has been 95.5 men.

A considerable fraction, perhaps one-tenth to one-eighth, of the recruits assigned to the organization are unsuitable for its peculiar purposes. The detachment's primary functions pertain to assistance in the instruction of cadets, contact with whom during the several drill seasons is daily and intimate. Obviously, therefore, its personnel should be of the highest obtainable type, sober, resourceful, upstanding, self-respecting, and of as much better than average intelligence as can be provided. Such a fraction of recruits as suggested are lacking in some or all of the requirements outlined, and accordingly to a greater or less extent are deadwood for the especial functions involved. Many are average and suitable material for the general service, wherein they would be perfectly capable of rendering reasonable return for their pay and emoluments. A correction of this situation has been and will continue to be attempted by special letters of request to the recruiting service.

Reference has been made in previous annual reports, and frequently in the reports of inspecting officers, to the inadequacy of the detachment barracks. The structure was built in 1858 for the accommodation of 50 men. It can accommodate, under wholly unsatisfactory and unsanitary arrangements, however, about 70 men. In step with the increase of the cadet corps, the personnel of the detachment must necessarily be augmented. It is accordingly again emphasized that suitable modern barrack provision should be made for about 130 men, preferably by the construction of a new building, since it is doubtful that the existing structure can be satisfactorily or economically enlarged.

The detachment's gymnasium and assembly room has been well patronized throughout the year for gymnastic exercise, as well as for dances, moving-picture exhibitions, etc., which during the winter season were arranged by the detachment's amusement committee.

The enlisted men's club, sustained largely by the enthusiasm and interest of the post chaplain, assisted by Corp. Williams, of the detachment, has been of the greatest value throughout the year. The two rooms heretofore available have been much improved by the installation of compo-board ceiling, repainting, and general renovation. In addition, the chaplain has made available funds for the construction of a kitchen, which is about completed, and of a porch, which will be undertaken during the summer. It is hoped that a third room can be provided during the coming year.

The detachment's discipline and instruction have been quite satisfactory since last annual report. Eight desertions are recorded, probably accounted for somewhat by the war spirit of the times and the desire for service in Europe, as well as the usual causes of temperament, personal troubles, insobriety, etc.

Improvement to roads and grounds.—Work was prosecuted during the year under an appropriation of \$3,000 in general accord with the original suggestions of the landscape architects, Olmsted Bros.

During the year the trail west of the State highway, near the cross-roads was completed. Those leading from the Cornwall Road toward Crow's Nest were advanced an aggregate of 4,850 feet. That on the south slope of the mountain has been constructed practically to the crowning plateau. The remaining distance to actual crest, perhaps 2,000 feet, can be made fairly practicable for mounted travel with some incidental clearing. Construction of the trail on the north slope was suspended about 4,000 feet from crest, and can not be further prosecuted until appropriations for the work are resumed.

During the year the trails generally have had attention to the extent of the removal of loose and projecting stones, the repair and improvement of water breaks, the clearing of drainage ditches, and the restoration of side walls and culverts.

It is unfortunate that the recent appropriation bill for the support of the Military Academy fails to provide funds for continuing this improvement of roads and trails. The work thus far accomplished has proven to be of great value in affording access throughout the forested portions of the reservation, in facilitation of timber removal, fire fighting, etc. In addition, most attractive riding circuits are provided, giving desirable impetus to horseback exercise and tramping, of peculiar value to the many officers here engaged upon confining academic duty.

Water supply.—The supply system has operated uninterruptedly throughout the year, and with a minimum of trouble. The pipe line from Queensboro and Popolopen Brooks developed one leak of moment, the location of which was difficult of determination during the season of melting snow. It has since been located and repaired.

The single important consideration at this time regarding the water system is the condition of the side hill retaining walls supporting the pipe line through Popolopen Valley. Many sections of these walls have slipped or have been thrown by frost during the past two winters, and although the pipe itself is yet unaffected, it is but a matter of time till the remaining support will be insufficient to prevent a side-hill slip. Such an event would be certain to destroy the line for something in excess of the length of the slip and bring into question a serious interruption of service, as well as expensive repair. The matter will be further referred to in the annual estimates.

Water has been drawn from Queensboro Brook throughout the year, except for 93 days, during which Popolopen was called upon to supply the Queensboro deficiency. Supply exceeded consumption during the year save for nine days.

By constant inspection sanitary conditions over the watershed have been maintained satisfactorily, with the result that the monthly examinations by the post surgeon of both raw and filtered water have disclosed nothing of an objectionable or suspicious nature.

Consumption continues to be extravagant, though less than during prior years. The available margin is large, however, and further reduction should readily be possible in case of need.

Consideration is being given to the practicability of arranging for the use of raw in place of filtered water for several of the post's activities.

The maximum recorded daily consumption was 1,660,000 gallons and the minimum 826,000 gallons. The average has been 1,055,244 gallons. The total for the year was 385,154,000 gallons.

The department is greatly in need of better transportation facilities for inspection service and for the more prompt and economical dispatch of laborers and tools for repair along the pipe line. By road, the intake from Queensboro and Popolopen Brooks are about 8 miles from the post. In the leaf season they must be inspected and cleared frequently. In case of leaks or other defects anywhere on the pipe line, laborers, tools, and supplies must be transported to and from the work, with the result of an expensive loss of time. These matters are now provided for by the assignment of a horse and buggy, supplemented by team hire where necessary. To improve these conditions authority and funds will be requested in the annual estimates to cover the purchase and maintenance of a light automobile truck of the Ford type.

DEPARTMENT OF ORDNANCE AND GUNNERY.

The course in ordnance and gunnery for the class of 1917 was abridged somewhat by the graduation of this class on April 20, 1917, instead of on the usual date. The early graduation necessitated the omission of the usual visits to the Sandy Hook Proving Ground and to Watervliet Arsenal. The usual written general review for the second-term work was also omitted. Aside from these changes the course for this year included more chapters of a new textbook which is being prepared than have hitherto been used.

An abbreviated course in ordnance and gunnery for the class to graduate August 30, 1917, was commenced on May 21, 1917. It is to be continued until July 7, 1917, and is a descriptive course in ordnance material. It was decided that the time available for this course was too short to permit of taking up the study of both the theory and the actual construction of ordnance material, and it was considered that the study of the actual construction would be of greater immediate value. Incidentally it is believed that through instruction in the section room the cadets taking this course have obtained a fair idea of the principles underlying ordnance construction.

Ordnance material.—The armament of the post has been kept in good repair during the year. Changes and alterations ordered by

the War Department have been incorporated in the field and sea-coast artillery at the post.

Ordnance laboratory.—This group of buildings comprises the ordnance barracks, machine, carpenter, and blacksmith shops, store-houses, etc. All these have been kept in good repair during the year.

Ordnance detachment.—The work of this detachment consists principally in receiving and issuing ammunition for target practice; caring for seacoast armament at the post; repairing, altering, and handling target material for cadet target practice; furnishing the enlisted personnel required in the museum; furnishing assistance in instruction of cadets in shopwork, and keeping in good order the grounds and buildings pertaining to the ordnance laboratory. This work has been satisfactorily performed during the year.

ORDNANCE MUSEUM.

In the ordnance museum the repair work on the foreign flags among our trophies has continued and it is thought will permanently preserve them. On a number of these, the work is complete as well as upon a much larger number of our own colors used prior to the Civil War.

A dozen gifts of various articles, some of considerable interest, have been received by the museum.

DEPARTMENT OF MILITARY HYGIENE.

The course in military hygiene was conducted along the same general lines as during the preceding year.

The recitations followed the prescribed textbook, Keefer's *Military Hygiene*, with the exception of the subject of transmissible diseases, for which a syllabus prepared by the head of the department was submitted.

Practical demonstration of field sanitary appliances was made a part of the regular course as well as practical instruction in first-aid work, following the precedent of the previous year.

Instruction in field sanitation, particularly with reference to the sterilization of water and the methods of disposal of excreta, garbage, manure, and other wastes, was for the first time made a part of the authorized work in the summer camps.

I wish to invite attention to the paramount importance of a course in this subject which shall be thorough-going and complete.

The health of troops has always been a matter of vital importance in deciding the success or failure of a campaign. Formerly, military authorities paid but scant attention to health matters; but now that preventive medicine has advanced almost to the rank of an exact science, and the causes and means of prevention of most transmissible diseases are matters about which we have precise knowledge, commanding officers are charged with the responsibility for any unusual amount of disability among their men due to preventable causes.

The maintenance of the health of troops is simply a question of the intelligent application of the principles of preventive medicine, and in the field it resolves itself into a matter of personal hygiene and sanitation; and in order that a commander may fulfill his entire

duty with reference to his men, he must have a practical working knowledge of the fundamental principles of these subjects if he expects to cooperate successfully with his sanitary adviser.

The course in military hygiene at the academy is in my opinion entirely inadequate to give its graduates this knowledge. It now consists of 19 hours of instruction, 13 for recitation and 6 for demonstration, given to the third class. I recommend that the course be given to the first class and that it cover a period of 60 hours of theoretical instruction and 12 hours of practical instruction in camp, as follows:

(a) Personal hygiene, 12 hours. This subject should be taught in such a way as to give the student a working knowledge of the human machine and practical ideas as to its care. It should include a study of elementary anatomy and physiology; of housing and ventilation; of outdoor living and sleeping; of clothing; of food, its uses and abuses, and its relation to health and disease; of the effects of alcohol and tobacco; of exercise in relation to health and physical development; of sleep and rest, work and recreation; of habit formation and of the mental life in relation to the physical.

(b) Diseases of the soldier, 12 hours. The line officer should have a practical knowledge of the causes and methods of transmission of the more common diseases, and a sufficient understanding of the symptoms and methods of prevention to enable him to cooperate with the medical officer.

(c) Sanitation, 12 hours. Field sanitation should include theoretical instruction in regard to camps; tents and their care; water supply and purification; latrines; disposal of wastes; the hygiene of marching troops; battle field hygiene and the evacuation of the wounded. Garrison sanitation should include a study of barracks construction; of ventilation, heating, and lighting; of water supply and purification; of sewerage and plumbing, and of the disposal of wastes.

(d) First aid, 12 hours. The instruction in this subject should include a consideration of wound infection and healing and of emergency treatment; of hemorrhage, methods of control and treatment; of fractures and dislocations and emergency treatment; and of the treatment of emergencies in general, such as drowning, heat stroke, heat exhaustion, frost bite, burns and scalds, etc.

(e) Review, 12 hours.

(f) Practical field sanitation, 12 hours. This instruction should be given in camp and should include a study of the sanitary considerations in the establishment of camps, demonstration of the methods of making sanitary inspections, of the methods of sterilizing water, of the construction and operation of latrines and incinerators and of the methods of the disposal of wastes.

DEPARTMENT OF ENGLISH AND HISTORY.

The cadets of the fourth class numbered 320 at the beginning of the academic work September 1, 1916. For their instruction in English and history, this department was allotted 11 instructors, and was required by a revised schedule to have each instructor teach three sections a day.

The methods adopted in previous years have been continued in the teaching so far as was practicable under the changed conditions.

It was found impossible to require from the cadets as much written work in English as formerly, because of the increased burden of work placed upon the individual instructors. It was found impossible in English, also, to have the same measure of individual criticism of the cadet's written work.

English.—The department continued to emphasize composition work during the fall term and the study of literature during the spring term. In the composition work, stress was laid upon simplicity, conciseness, and directness of expression. Written exercises were frequently required, and the papers, after being corrected, returned to the cadets for their information. In the study of literature, the attempt was made to acquaint the cadet with models of the various classes of literature and to stimulate his interest in good reading.

During the written general review periods, the men at the top of the class were given a special course, using Lamb's Essays of Elia as a textbook at the end of the fall course, and selected dramas at the end of the spring course.

History.—The work in history showed less the effect of the revision of the schedule than did the work in English, because written work and careful individual conferences between cadet and instructor are not so necessary in history as in English. By adopting a system of short written recitations followed by a class "quiz" the material in the lessons was covered satisfactorily.

During the written general review periods, the men at the top of the class were given special work. During the fall term, they studied the Campaigns of Napoleon; during the spring term, they studied the European conditions and diplomacy leading up to the present war.

Lectures.—As in previous years, an important feature of the work has been the lectures delivered by men from other institutions in connection with the course. Among those who lectured were: Profs. Adams, Keller, Mims, of Yale; Mr. A. K. Dawson, Mr. F. L. Simonds.

CHILDREN'S SCHOOL.

The organization of the school was as follows:

	Grade.	Number of pupils.
Mr. Edgar P. Paulsen.....	8	16
Miss M. R. Noonan, teacher.....	7	14
Do.....	6	24
Miss H. Schopper, teacher.....	5	19
Miss A. Driscoll, teacher.....	4	19
Do.....	3	16
Miss A. M. O'Connor, teacher.....	2	24
Do.....	1	18
Total.....		150
Number of boys registered.....		78
Number of girls registered.....		72

The resignation of Mr. Edgar P. Paulsen, principal, has been accepted to take effect July 1, 1917, and Mr. Earl E. Graves, who has been principal of the graded school at Kerhonkson, N. Y., has been appointed principal. Mr. Earl E. Graves comes with the highest

recommendations, and it is believed that he is fully competent to take charge of the school. The remaining teachers were satisfactory and have been engaged for the year 1917-18.

The lack of room and the inadequate facilities of the present school building have been made the subject of previous report, and while immediate changes are not recommended it should be kept in mind that the present school building is not satisfactory and that when the opportunity arises provision should be made for a new school building.

Sixteen eighth-grade pupils of the W. P. children's school took the State regents examination in June and all passed with the average mark of 93 $\frac{1}{2}$ per cent.

It is recommended that the officer in charge of the children's school be a married officer with children attending the school.

The appropriation of \$4,320 for the maintenance of the school was expended as follows:

Pay of principal.....	\$1,280.00
Pay of four grade teachers.....	2,350.00
Pay of janitor of chapel.....	100.00
Purchase of books and supplies.....	588.84
Balance on hand.....	1.16
Total.....	4,320.00

THE CHAPLAIN.

The labors and duties which the chaplain of the Military Academy can undertake are very numerous, varied, and important, but their inception and execution depend almost entirely upon his own initiative and determination. He often works under discouraging limitations that require an exceptional personality to overcome. The present occupant of the place has the most catholic conception of the duties of his position, and it is difficult to see how he could have made better use of the opportunities which have presented themselves. He is serving the academy and the post at a material sacrifice because of the satisfaction he finds in good work. I fully concur in the statement of Gen. Townsley's report of last year that the chaplain's salary is entirely inadequate to the importance of the position and not commensurate with the work done and benefit conferred; it should be increased by at least one-half.

I invite especial attention to the brief statement which follows of Chaplain Silver's work during the past year, prepared at my request, and which is but a continuation, development, and repetition of the work along similar lines in previous years:

In compliance with instructions from your office, I beg herewith to submit a brief statement regarding my work as chaplain, United States Military Academy, covering the year ending June 30, 1917:

Religious services.—Number of public services, 278; baptisms, 20; weddings, 5; funerals, 14. Services were regularly held in both the cadet and the old chapel.

Sunday school for the children of the post was conducted in the basement of the cadet chapel. The officers and teachers of the school were drawn from the members of the corps (save that for the infant class, which was in charge of the wife of one of the officers of the post). Nearly all the cadets at work in the school were members of the academy football team. These men rendered faithful and efficient service.

The Miss Warner Bible Class (named in honor of Miss Anna B. Warner) was conducted by the chaplain. The class met Sunday afternoons, and when weather conditions permitted assembled in the old Warner House on Constitution Island and at other times met at the chaplain's quarters. Sometimes as many as 50 cadets attended.

The cadet Y. M. C. A.—On invitation of the cadets I have from time to time cooperated with them in the splendid work this organization is doing for the uplift of the life of the men of the corps.

Cadet Bible-study classes.—This work is carried on under the direction of one of the committees of the cadet Y. M. C. A. The course of study covers a period of 15 weeks, and about 200 members of the corps voluntarily elect to join the classes. The chaplain and several of the officers of the post meet with and go over the lessons with the group leaders (cadets) and these men in turn meet with and instruct the members of their several groups.

Memorial windows in the cadet chapel.—During the year windows, received as memorials from the following classes, were publicly dedicated: The classes of 1877, 1879, 1885, and 1891.

The chapel organ.—Several memorial stops were placed in the organ. We are indeed fortunate in having the services of Mr. Frederick C. Mayer as organist, under whose direction the music of the chapel services has become a great power for good in the life of the cadets and all who worship at the chapel.

Cadet chapel choir.—The choir, numbering 105 members (all cadets), has, under the masterly direction of Mr. Mayer, rendered exceptional service. Graduates of former years will recognize that some remarkable change must have taken place in the status of the choir when it is stated that cadets are not only willing, but anxious, and feel honored, to serve as a member of the choir. This change in the attitude of the cadets is due to the splendid and devoted work of our organist, Mr. Mayer.

Chimes.—During the year I secured from Mrs. James M. Lawton, of New York City (daughter of the late Gen. Robert Anderson), the promise to place in the tower of the cadet chapel a chime of bells, as a memorial to her father. A contract was let to the Meneely Bell Co., of Troy, N. Y., who have agreed to place in the tower of the cadet chapel one of the best set of chimes ever made in this country. The contract calls for a chime to cost \$15,000, and all the expense is to be borne by Mrs. Lawton.

My work is not, as some imagine, confined to holding formal religious services, but is on a wider and higher plane, and consists in nothing else than to demonstrate that Christianity is a practical thing, vital and applicable to everyday life; and intended to clearly interpret, in the language of action, the life of the Master to the children of earth, by reaching out into every corner of life to brighten, cheer, comfort, instruct, strengthen; ministering to the sick and needy, and, at the same time, rejoicing with them that do rejoice.

Work among the soldiers.—The Enlisted Men's Club, which I organized in a very humble way nearly three and a half years ago, has grown and developed into a real force for good. From being a constant drain upon such funds as I could gather, it has become a self-supporting institution so far as its running expenses are concerned.

During the past year I have expended (from funds given me for that purpose) more than \$500 in such improvements as the following: Building an additional room to serve as a kitchen; building a porch in front of the club rooms; improving the bowling alleys (\$300); placing compo board ceilings in the lunch and billiard rooms; equipping the kitchen. We endeavor to make this club so attractive that soldiers will not feel the need of seeking their enjoyment in the more or less questionable places in the nearby villages.

There are no dues. Billiards, bowling, and the use of the club library and reading room are free to all members, the present enrollment numbering about 400. We operate a lunch room, and aim to place everything sold within the reach of members without thought of making any profits other than are necessary to meet actual running expenses. Our income during the past year was \$6,300.35, yet we closed the year with a balance in the treasury of about \$100. All profits are given back to the club members in the form of improvements which add to their comfort. I believe this club has proven to be worth all the energy spent upon it, and is more than a worthwhile factor in the life of the enlisted men. The club finances a free weekly dance, as also free moving picture entertainments, weekly, and the pictures shown are of a very high type. We constructed bathhouses on the banks of the river for the use of the soldiers and their families. The commanding officer of the detachment of Engineers has served as president and I have acted as treasurer and general overseer.

The children's playground.—One of the activities demanding a great deal of my time and attention has been the children's playground, which ministers to the 300 children of the post, as well as to the grown-up people. We have done everything in our power to make its work effective for good. This playground, which we started a couple of years ago, and which then consisted of only a few swings and a seesaw, is now one of the best in the country, being equipped with the very best playground paraphernalia, including slides, merry-go-rounds, giant strides, basket-ball court, baseball ground, swimming pool, bathhouses, wading pool, and all sorts of devices for

the entertainment of children. This has all been made possible through the generous interest of friends who were able to contribute large sums of money for the purpose. This year we began the construction of a building 60 by 90 feet (completed in September, 1917, at a cost of \$4,000). There is a large hall for general meetings and dances, and at one end two rooms for the girl scouts. These rooms are to serve as a workshop, where the girls are to be taught domestic science, including instruction in cooking and general housework.

During six months of the year I employed the services of two playground directors. During the past year I have had a man, a graduate of the Springfield College, who has had charge of the boys' work, teaching them swimming, baseball, etc., and an experienced woman to handle the girls' work and play, and direct all courses of instruction. I employ all the year round a civilian to keep the grounds and buildings in order. I secured during the year a gift of \$2,500 for the construction of a building for the Boy Scouts. This structure will be erected as soon as the price of building materials and labor are such that it will be possible to carry out our plans.

During the year we have, without any financial aid from the Government, constructed the building referred to and have also enlarged the swimming pool (cost \$300); completed the baseball diamond (cost \$250); added new playground material; paid the salaries of the two playground directors and the keeper of the grounds, as well as meeting all other expenses for carrying out a program of numerous activities. For these purposes, during the year, I collected from friends more than \$8,000.

Camps for boys and girls.—During the summer we had a camp for the Boy Scouts at Long Pond, and following that a camp for the Girl Scouts. It fell to my lot and was my privilege to direct and finance these helpful enterprises.

Motor boat.—Money was given me to purchase a motor boat with a carrying capacity of 12 persons. I employed an experienced and licensed boatman, and operated this boat all summer, running daily excursions on the river. Everyone on the post was free to request the use of the boat at no expense to themselves, for the purpose of going off for a trip on the river. They could go either in the morning, the afternoon, or the evening. Our stipulation was that parties should consist of at least 8 and not more than 12 persons. During the hot days of the summer this boat offered to many, unable to go off for vacations, an opportunity for rest, relaxation, and enjoyment. It proved well worth the all that it cost, and was a very helpful agency, as it served many in a wholesome manner.

Excursions.—I chartered the S. S. *Commander* on two occasions at the rate of \$100 a trip, taking at one time the cadet chapel choir on an excursion to Kingston, where we were met by Mr. Winston, in charge of the construction of the Ashokan Dam, who, with a party of gentlemen and a train of 12 automobiles, took our party to see the wonderful construction of this reservoir system. The drive around the property covered a distance of 60 miles. The second excursion was for the officers' families of the post. I had arranged to take the families of the soldiers, but the Government took over the boat from its owners, and that excursion was necessarily called off.

Stringed orchestra.—I purchased stringed instruments (\$300) and organized an orchestra among the soldiers of the Cavalry detachment. These men have been faithful in practicing and have been rendering good service.

We have Boy Scouts, Girl Scouts, a Girls' Friendship Club, and a Club of Women, the wives of soldiers. In their various fields of operation all these organizations have accomplished much both for their members and for others whom they bent their energies to serve.

Hospital fund.—I have started a hospital fund, at present amounting to only \$300, which is used to assist soldiers who find it necessary to send members of their families to hospitals for treatment. There are no facilities here for caring for the families of soldiers needing such care. In my judgment this is one of the crying needs of this post, and especially so when one considers the number of women and children here.

Visiting nurse.—I entered into an agreement with the Welfare League of Highland Falls, N. Y., of which I am a member, whereby the people, both of the village and of this post, might have the advantage of the services of a visiting nurse. We urged the employment of such a nurse, and agreed to pay the first month's salary, which we considered it a privilege to do, and have since then, from time to time, made such payments as were found necessary to complete the payment of the nurse's salary. The introduction of a visiting nurse in this vicinity has been a great blessing to many.

Charity work.—We cooperate with the people of Highland Falls in local charity work, and with gifts of clothing, food, and money, have assisted many in need.

War relief work.—It was a most pleasant duty to have a share in organizing the ladies of this post for war work, and to secure the funds necessary to finance such work. The great amount and the splendid character of the work done reflects great credit upon those consecrated women whose labor of love is a real offering at the Nation's altar.

Children's Christmas tree.—One of the great events of the year, at least for the little ones, is this Christmas-tree service. We have a wonderfully beautiful tree in the cadet chapel, before which the children gather, to the number of about 300, and sing their Christmas carols. Then "Santa Claus" appears with a gift for each.

Our efforts have not been devoted solely upon the work to be done here, but we have generously contributed to many outside charities, and have responded to many appeals for help from our own and distant lands.

Personally, I have gone to deliver addresses to a number of schools and colleges, and to meetings of conventions and associations of men, to a number of public gatherings, in many towns in this part of the country, in an effort to do something to arouse our people in these days of the Nation's need.

With many doors of opportunity standing wide open, and with many people to serve, it has been a joy and a pleasure to be permitted to minister in this place.

Grateful to those in authority, who have been most helpful, and grateful to the many friends who have given generously of their thought, their interest, their money, we have been able to accomplish at least something.

CHAPEL ORGANIST AND CHOIRMASTER.

The organist and choirmaster has continued his zealous and efficient work not only in the performance of his official duties, but also in encouraging and securing sympathetic and material interest in the enlargement and development of the organ; he also has on frequent occasions favored the post with organ recitals which are greatly enjoyed by visitors, the officers of the post and their families, as well as by the cadets. His musical programs educate, as well as afford pleasure and are frequently offered when out-of-door sports are prohibited by climatic conditions, and are thus more highly appreciated and warmly welcomed by cadets.

The following extract is taken from the annual report of the superintendent for 1916, which is fully indorsed by me:

The present incumbent, Mr. Frederick C. Mayer, is a musician and an organist of rare ability and besides has a temperament and individuality that appeal most strongly and favorably to cadets. It is because of these attainments and qualities that he is able to maintain a voluntary choir of 90 cadets for chapel services and train them in music to a degree that has made this feature a pride and a delight to all who attend the cadet chapel services at West Point.

He and his work deserve the fullest encouragement and all practicable assistance.

THE ADJUTANT'S OFFICE.

Headquarters force.—The organization of the headquarters force has not changed during the past fiscal year except that two of the classified civil-service employees have left the office to obtain better positions elsewhere—one in the office of the quartermaster, and the other to private employment.

The work on the cadet records which are being accurately recorded on index cards has continued during the year, and at present there are about 5,685 cards completed and filed and 680 rough copies of blank additional cards have been completed. This work was undertaken by the chief of the disciplinary division, assisted by an extra duty detail, during the past fiscal year. When once completed it can easily be kept up to date and it is estimated will result in a considerable saving of labor and time in answering inquiries with respect to ex-cadets.

The additional member of the Army service detachment who was placed in the bindery division of the printing office during the past

fiscal year has continued in this capacity during the current year. Through his assistance the bindery division has been able to perform for the library practically all the binding required by it and at a cost of approximately one-fourth of what the work would have cost had it been done elsewhere. This has, therefore, proved to be an advantageous change and is one which it is believed will be continued.

Under legislation enacted during the current fiscal year the headquarters clerks have received graded increases in their pay amounting to approximately 10 per cent, and an effort should be made to have this increase made permanent. In event this can not be done and the law is not effective during the next fiscal year it is urgently recommended that a special item be entered in the Military Academy Estimates by which the increases for all headquarters employees will be approximately that provided for under this law. In addition to this the pay of the chief clerk should be the same as that of chief clerks at departmental headquarters, and it is further recommended that such an item be entered in the estimates for the next fiscal year.

The increase in the corps of cadets over what it was at the time the present office force was organized has thrown a considerable amount of additional work upon all the headquarters clerks. This has often required longer hours and in many instances work without regard to hours. The introduction of labor-saving devices has operated to help out in some instances, but when the corps is further increased to approximately 1,200 cadets it will be necessary either to increase the force or else to omit many of the important records which are now being kept. This applies particularly to the cadet records. The office force as now organized was considered ample and proper for a corps of approximately 600 cadets. The extension of the law to include candidates from the National Guard and the Regular Army has considerably increased the work of the office, as has also the extension of the certificate privilege. Introduction of the War Department correspondence file, decimal classification, and vertical file system has simplified the filing of papers, but there is at present no indication of a decrease in the amount of work involved in the filing and record division. It is probable that after the clerks in this division have become more familiar with this system that there will be a considerable saving of time, although at present much additional time is often required in finding current records which are called for.

The office force, individually and collectively, has rendered most efficient and loyal service. Little time has been lost through illness, and authorized leaves of absence have been given so as to create a minimum interference with office work. Work of all departments in the office has been satisfactorily performed during the current year, and the work has been kept up to date.

Military Academy band.—The recommendations contained in my last two reports with respect to an increase in the band have resulted in no increase. It has been recommended each year that the following increase be made: Three first-class musicians, at \$45 each per month; three second-class musicians, at \$36 each per month; four third-class musicians, at \$30 each per month. There has been no increase in the personnel of the band for 17 years, at which time the strength of the corps of cadets was only a little more than half of what it is now. The increase asked for above will add materially to

the efficiency of the band. These increases will permit the addition of a number of brass instruments, thus increasing the volume of music furnished for the increased size of the corps. This seems to be the only solution for obtaining a proper volume of music for formations where the entire corps is present.

Detachment of field musicians.—The field music consists of 1 sergeant, 2 corporals, and 22 privates, an increase of 1 corporal over the organization at this time last year. The proportion of noncommissioned officers to privates is still entirely too small for proper military administration and does not admit of a reasonable opportunity for advancement in the field music. The organization of the field music should be changed to agree approximately with line organizations and should be as follows: Two sergeants, 2 corporals, 12 privates, first class, 16 privates. The amount of work thrown on this detachment increases almost in direct ratio with the increase in the corps of cadets. The organization indicated above means an increase of one sergeant and six privates beyond what the present organization provides, and involves the classification of first-class privates and privates. It is thought that this increase will provide sufficient men until such time as the corps reaches the strength of 1,000 cadets.

The band and detachment of field musicians are now and have been for many years under the direct command of the adjutant of the military academy. In 1915 and 1916 it was recommended that the command of this detachment be turned over to the commandant of cadets for reasons stated in last year's report; conditions now remain the same as they were last year, and the necessities for this transfer are the same as then. It is again recommended that this transfer be made.

QUARTERMASTER'S DEPARTMENT.

Quartermaster corps.—The general duties of the quartermaster corps continued the same as in previous reports. The quartermaster corps detachment consists of 20 enlisted men and 1 sergeant, Quartermaster Reserve Corps. The position of one civilian clerk, quartermaster corps, was vacated by transfer to the permanent establishment, United States Military Academy, and filled by detail of a sergeant quartermaster corps. One civilian clerk, quartermaster corps, was transferred to the Southern Department and his position was filled by the sergeant, Quartermaster Reserve Corps. The detachment should be increased by one sergeant foragemaster. The amount of forage received at this post is very large and the facilities for storage are not of the best, and to keep track of the receipts and issues a good noncommissioned officer is necessary.

Army service detachment.—Since last report, the authorized strength of the Army service detachment has been increased by 43 men. The number of noncommissioned officers in the detachment was considerably increased. On account of the labor conditions, it being almost impossible to get competent labor, a further increase of approximately 20 men would practically make the post independent of outside labor. This increase is recommended.

Civilian employees.—There has been a general increase in the wages paid to civilian mechanics and laborers to correspond with prevailing wages outside.

Transportation.—The work of hauling fuel, forage, freight, road repair, grading, police, etc., has increased considerably during the year and has made great demands on the transportation at the post. The Quartermaster General has increased the transportation by two 3-ton freight trucks and two 1½-ton trucks. The Quartermaster General has also furnished one Maxwell touring car for use of the surgeons of the post in the performance of their official duties. Although the past winter was a very severe one, there was hardly a time when the motor transportation was not in use. However, this is unusual and sufficient horse-drawn transportation must be kept on hand to meet emergencies during the winter.

Post cemetery.—The number of interments in the cemetery during the fiscal year was 37, making a total to date of 1,646. It is recommended that the appropriation for the upkeep of the cemetery be increased to \$2,000 per year. The present appropriation of \$1,500 is not sufficient to meet the demands.

Fire department.—During the year there has been one fire on the post which destroyed, or partially destroyed, No. 2 stables. The automobile fire engine, purchased last year, was put to its first actual test at this fire and performed its work with great efficiency. The engine was at the fire and the hose out before the men to operate the hose arrived. During the year about 150 hand chemical fire extinguishers were purchased. All buildings were equipped with these extinguishers and there were several kept on hand at the storehouse for emergencies and also to help exterminate woods fires. An estimate has been prepared and forwarded to the War Department for a combined guardhouse and fire apparatus house. This building is urgently needed because there is no proper fire apparatus house that can hold one-half the fire apparatus. The guardhouse is totally inadequate for the needs of the post.

Power plant.—During the fiscal year about 9,000 tons of buckwheat and bird's-eye coal were purchased. The contract price for coal for the fiscal year 1917 was \$2.90 per ton for buckwheat and \$2.27 for bird's-eye, the bird's-eye to be used in the stoker-fired boilers. No bids were received for either the power-plant coal or coal for domestic use. Through correspondence with the National Council of Defense, we have been informed that two coal companies will furnish coal needed for the fiscal year 1918 at current prices, but will not guarantee any chemical analysis. We have made arrangements through the contractor, who has delivered coal to the post for the last 10 or 12 years, to get the same coal as purchased heretofore. The current prices for the month of July for bird's-eye coal is \$4.10 per ton. As we will need 9,000 or 10,000 tons for the power plant, this will practically consume the total amount of the appropriation for fuel and apparatus and will require a deficiency estimate of about \$15,000 to be submitted to Congress before the end of the year. The appropriation for 1917 carried an item of \$15,000 for installing automatic stokers under four boilers. Bids were advertised for and the lowest bid for installation of stokers was approximately \$32,000, so that the appropriation was not used, and estimate for next year will be increased to cover this installation.

Heating and ventilating system.—The system has worked satisfactorily throughout the year and no complaints have been received from this source. The appropriation act for 1918 combines the position of

chief engineer of power plant and the engineer of the heating and ventilating apparatus—a saving to the Government of \$1,800 a year. Mr. P. J. Bryant, the present engineer of heating and ventilating apparatus, has been promoted to this combined position, and will take charge July 1. The chief engineer of the power plant has been discharged. There has also been made a saving to the Government by reducing the number of firemen from 11 to 8. Modern up-to-date heating plants have been installed in quarters Nos. 37 and 39, and also in the Army service barracks. The heating plants of the cavalry and artillery barracks have been modified so as to give more efficient service.

Gas plant.—The revenue derived from gas, coke, and tar is covered into the special contingent fund and applied to the payment of employees in gas works, purchase of gas coal, and other miscellaneous expenses.

Gas coal for the next fiscal year will cost \$5.60 per ton, being an increase of \$1.75 per ton over that of 1917. At this rate the amount for coal required will exceed the appropriation and a deficiency estimate for gas coal will have to be made to Congress before the end of the fiscal year.

Special contingent fund.—This fund is authorized under the provisions of chapter 212, Revised Statutes, act of Congress approved May 1, 1888. The fund is derived from rentals, sale of gas, electricity, coke, tar; wood, etc. The amount to be derived from rentals during the next fiscal year will be reduced by the amount from the rental of the public stables and the electric-light plant on Popolopen Creek, amounting to \$1,000.

Hotel.—The condition of the hotel is becoming such as to make it practically impossible to get anyone to lease it and operate it. Every year an appropriation for a new hotel was asked from Congress, but as yet no funds have been appropriated.

Forestry department.—The work for the past year has been carried on by a forester and four assistants. Other men have been employed when needed. The sawmill has been run for about three months during the year and about 60,000 board feet of lumber have been sawed. During the past year the mill was thoroughly overhauled and put in first-class order.

Since July, 1916, about 400 ties, 200 cords of wood, 350 rails, and 400 posts have been cut. Ties and wood are sold to the best advantage and proceeds converted into the special contingent fund.

During the spring of 1917, the following young trees have been planted: 5,000 white cedar, 9,000 Norway pine, 4,000 red pine. About one dozen old trees have been removed from the post proper and young elms will be planted in their stead. A good many of the elms on Trophy Point have been given necessary surgical treatment and all elm trees have been thoroughly sprayed.

Laundry.—The Military Academy appropriation bill for 1918 carries an item of \$75,000 for a new laundry. The estimate for the laundry desired and for which plans and specifications have been drawn up and approved by the War Department, amounted to \$130,000. Needless to say that with \$75,000 such a laundry can not be built. Other plans of a building much reduced in size and a different method of construction are being drawn up and will be duly advertised for. An estimate should be included in the 1919 estimates for about \$50,000

so that a laundry of proper size and one that will meet the needs of the post can be erected. With the enlargement of the corps of cadets to 1,200, the conditions will be such as to require the old and the new laundry to be operated at the same time.

Public works.—Pursuant to proviso in the Military Academy appropriation act, fiscal year 1917, a board of officers was appointed by the Secretary of War to investigate and report upon the buildings and other improvements necessary to accommodate and care for the increased corps of cadets. This board made its report on or about November 2, 1916, and recommended buildings and other improvements that will cost about \$5,350. Some of these buildings are urgently needed now and their construction should begin at the earliest possible date. It will require in the neighborhood of two years to complete the buildings after they are authorized.

Attention is again called to the urgent need of quartermaster storehouses and shops. The plans and specifications of these buildings have been drawn and approved by the War Department. Some of the first buildings to be torn down for the enlarged construction will be some shops and garage. There is no place on the post at present to which these can be removed.

General repairs and upkeep.—All necessary repairs and improvements to public buildings and quarters have been made as funds would permit. During the past year 20 rooms and 6 halls in south cadet barracks were refloored with composition flooring. There were installed in four divisions of the north cadet barracks new lighting fixtures, which improved the lighting of the rooms affected greatly.

Eighteen sets of officers' quarters, the band practice hall, the restaurant and hotel were equipped for electric lighting during the past year.

Work in waterproofing the walls of post headquarters, bachelor building, and gymnasium has been carried on throughout the year with beneficial results.

Roads.—The roads on the post have been kept in very good condition during the past year. The main road from the academic buildings to the hotel was resurfaced with asphalt macadam and a retaining wall and asphalt macadam road was built from the cadet chapel to the Catholic chapel.

Receipts and disbursements.—Receipts and disbursements are shown in statements Nos. 1, 2, and 3.

No. 1.—*Statement of receipts and expenditures pertaining to the special contingent fund, United States Military Academy, for the fiscal year 1917.*

July 1, 1916, balance on hand. \$5, 664. 44
June 30, 1917, receipts:

Rents—

Hotel.	\$100. 00
Post-office department.	200. 00
Stables.	150. 00
Electric-light plant.	525. 00
Store and restaurant.	187. 50
Western Union Telegraph Co.	60. 00
	1, 222. 50

June 30, 1917, receipts—Continued.

Sale of—	
Wood, forestry.....	\$4, 812. 17
Gas and electric current.....	11, 805. 80
Coke.....	884. 84
Railroad ties.....	1, 893. 87
Tar.....	451. 40
Waste paper.....	62. 32
Miscellaneous.....	85. 57
	\$19, 995. 87
Wharfage dues.....	1, 589. 10
Total to be accounted for.....	28, 472. 01
Total expended, June 30, 1917.....	20, 000. 53
Balance, June 30, 1917.....	8, 471. 48

No. 2.—Statement of funds pertaining to the quartermaster corps, at West Point, N. Y., received, disbursed, and deposited during the fiscal year 1917, from July 1, 1916, to June 30, 1917.

Appropriation.	On hand July 1, 1916.	Received since	Total to be accounted for.	On hand July 1, 1917.	Total dis- bursed, depos- ited, and on hand.
Pay of the Army.....	\$38, 809. 08	\$360, 000. 00	\$398, 809. 08		\$398, 809. 08
Pay of the military academy.....	64, 600. 04	802, 500. 00	867, 100. 04	\$64, 789. 47	802, 310. 57
Pay of the Army deposit fund.....	3, 758. 80	6, 000. 00	9, 758. 80	4, 043. 46	5, 715. 34
Soldiers' deposits.....		1, 656. 41	1, 656. 41		1, 656. 41
Pay collections.....		5, 303. 71	5, 303. 71		5, 303. 71
Supplies, services, and transportation.....	4, 340. 12	430, 550. 85	434, 890. 97	16, 060. 64	418, 830. 33
Military post exchanges.....		200. 00	200. 00		200. 00
Barracks and quarters.....	133. 35	7, 734. 75	7, 868. 10	696. 95	7, 171. 15
Shooting galleries and ranges.....	207. 87	328. 00	535. 87	202. 00	333. 87
Disposition of remains.....		123. 00	123. 00		123. 00
Headstones, etc.....		12. 00	12. 00		12. 00
Income tax.....		104. 29	104. 29		104. 29
Miscellaneous receipts.....		1, 065. 00	1, 065. 00		1, 065. 00
Total.....	111, 849. 26	1, 615, 578. 01	1, 727, 427. 27	85, 792. 52	1, 641, 634. 75

No. 3.—Statement of funds received and disbursed from appropriations for the United States Military Academy at West Point, N. Y., during the fiscal year ending June 30, 1917.

	Current and ordinary expenses, 1916.	Miscella- neous and in- cidental expenses, 1916.	Buildings and in- grounds, 1916.	Miscella- neous and in- cidental expenses, 1915-16.
Balance July 1, 1916.....	\$11, 129. 31	\$4, 934. 92	\$22, 804. 96	\$1, 326. 64
Received since July 1, 1916:				
Cash collections.....	60. 74		5. 00	
Total.....	11, 190. 05	4, 934. 92	22, 809. 96	1, 326. 64
Deposited and disbursed since July 1, 1916:				
Fiscal year 1915-16.....				. 90
Fiscal year 1916.....	1, 265. 16	205. 09	835. 30	
Disbursements since July 1, 1916.....	9, 924. 89	4, 729. 83	17, 809. 66	1, 326. 65
Balance on hand July 1, 1917.....			4, 365. 00	
Total.....	11, 190. 05	4, 934. 92	22, 809. 96	1, 326. 64

No. 3.—*Statement of funds received and disbursed from appropriations for the United States Military Academy at West Point, N. Y., during the fiscal year ending June 30, 1917*—Continued.

	Buildings and grounds, no year.	Mainte- nance, 1917.	Miscella- neous receipts.	Total.
Balance July 1, 1916.....	\$6,704.86			\$46,900.09
Received since July 1, 1916:				
Fiscal year 1917.....		\$310,673.95		310,673.95
Miscellaneous receipts.....		85.36	\$17.00	17.00
Cash collections.....				151.10
Total.....	6,704.86	310,759.31	17.00	357,742.74
Deposited and disbursed since July 1, 1916:				
Fiscal year 1915-16.....				.99
Fiscal year 1916.....				2,305.55
Fiscal year 1917.....		11.60		11.60
Miscellaneous receipts.....			17.00	17.00
Disbursements since July 1, 1916.....	1,352.40	272,163.26		307,105.66
Balance on hand July 1, 1917.....	5,352.46	38,584.46		48,301.91
Total.....	6,704.86	310,759.31	17.00	357,742.74

TREASURER, QUARTERMASTER, AND COMMISSARY.

Treasurer's office, state of business May 31, 1917.

ASSETS.		LIABILITIES.	
Accounts receivable.....	\$5,712.97	Accounts payable.....	\$45,678.63
Cadet store stock.....	179,889.66	Cadet store.....	10,616.58
Cadet mess stock.....	19,984.21	Equipment fund.....	161,052.35
Cadet laundry stock.....	2,221.24	Interest on equipment fund..	23.26
Treasurer's cash.....	23,549.84	Glee club.....	.80
Pay due.....	27,583.33	Miscellaneous fund.....	8.50
Tennis club.....	181.90	Y. M. C. A.....	267.65
Dialectic society.....	191.78	Howitzer.....	1,155.16
First class club.....	13.30	Golf club.....	47.10
		Reserve fund, store.....	37,144.80
		Reserve fund, mess.....	241.19
		Reserve fund, laundry.....	3,092.21
	259,328.23		259,328.23

Total business for the year ending May 31, 1917:

Receipts, all sources.....	\$648,534.85
Disbursements, all accounts.....	809,857.29

Due to the advancement of dates of graduation of classes of 1917 and 1918, it was necessary to withdraw \$90,000 of the equipment fund, which was on deposit at interest. Accrued interest on this deposit from May 1, 1916, to April 30, 1917, \$3,051.68, was apportioned to each cadet of the corps in proportion to his equipment fund balance.

It required \$94,787.86 to pay off and close the accounts of the class graduating April 20, 1917. This class left the academy completely equipped as officers, and with all bills and other indebtedness paid, and with an average of \$260.42 each in cash. Succeeding classes will feel the increase of cost of all items due to the war and will not be able to save very much with the present rate of pay.

Cadet store.—The cadet store departments and shops have been rearranged in efforts to accommodate the increased business due to the increase in the size of the corps of cadets. The amount of busi-

ness transacted by the cadet store is out of all proportion to the physical size of the plant, which is inconveniently arranged and wholly inadequate in every particular.

The cost of every item of uniform and equipment used by the cadets has continued to advance during the year. The sales at the cadet store for the year ending May 31, 1917, amounted to \$217,877.30.

Cadet laundry.—The business of the laundry for the year ending May 31, 1917, amounted to \$31,183.40, and the dry-cleaning department \$3,751.75.

In the act for the support of the Military Academy for the fiscal year ending June 30, 1918, the sum of \$75,000 was appropriated for labor and material for construction of a new cadet laundry, which will be constructed under the supervision of the quartermaster, West Point.

Cadet mess.—The effect of the war on the cost of foodstuffs has been sorely felt in the mess. The cost of the mess in 1914 was \$19.49 per month for each cadet; in 1917, \$22.98. The comparison of prices of foods during April, 1914, before the war, and April, 1917, is interesting.

	April, 1914.	April, 1917.	Increase.
			<i>Per cent.</i>
Sugar, granulated, pound.....	\$0. 04	\$0. 09	125
Flour, barrel.....	6. 50	13. 50	107
Milk, fresh, quart.....	. 06	. 08	33
Lard, pound.....	. 12½	. 25	100
Butter, pound.....	. 30	. 55	83
Eggs, dozen.....	. 21	. 38	80
Bacon, pound.....	. 17½	. 26½	53
Ham, pound.....	. 15	. 27	80
Beef, fresh, pound.....	. 13½	. 18½	37
Lamb, pound.....	. 13½	. 19½	47
Pork, pound.....	. 14½	. 22½	55
Potatoes, peck.....	. 23	. 90	291
Onions, pound.....	. 04	. 13	250
Sweet potatoes, peck.....	. 35	. 75	114
Cabbage, pound.....	. 03	. 15	400

During the year ending May 31, 1917, there was paid out for food supplies \$168,407.37, and in addition \$38,393.18 for operating expenses. This is all borne by the cadets.

In the annual Army appropriation bill, subsistence of the Army, there is carried: "For payments of commutation of rations to the cadets of the United States Military Academy, in lieu of regular established ration, at the rate of 40 cents per ration." The subsistence allowance for cadets is analogous to the same allowance for enlisted men, United States Army. The cost of the latter per man is .3047 cents per diem, and in addition the enlisted man is subjected to no charge for the preparation and service of his food. The cadet at present pays from his salary the expenses of wages of all employees of the cadet mess, for the supply and upkeep of china, linen, tableware, silverware, for cleaning material, and for laundry of mess linen, as well as freight, express, and all delivery expenses connected with the food and other supplies for the mess. When the commutation of rations for cadets was fixed at 30 cents in 1902, the value of the enlisted ration was 18 cents. Under the same proportionate increase in cost of supplies the cadet ration should now be 60+ cents. The increase of 20 cents in the ration allowance for cadets will just

about pay for the services of the employees of the mess, leaving the various other items to be borne by the cadet, as well as the difference between the actual cost of food supplies and the present 40-cent ration.

HEALTH AND SANITATION.

Corps of Cadets.—The health of the corps as a whole has been very satisfactory. There were 756 admissions during the year, equivalent to an annual admission rate of 1,061 per thousand, and increase of 61 per thousand as compared with the preceding year. This increase is mainly due to a mild epidemic of influenza during the month of January, 123 cadets being admitted to hospital during that month as compared with 63, the average for the other months during the year. The noneffective rate for cadets treated in hospital was 14.54 per thousand as compared with 13.82 for 1916; the average number of days treatment of each case was 5, the same as last year, as compared with 6.4 days for 1915, 4 for 1914, and 4.8 for the preceding four years. The following table shows the hospital admission rates and the noneffective rates per thousand for hospital cases for the past eleven years:

Year.	Mean actual strength command.	Cases.	Rates per thousand.	Non-effective rates per thousand, hospital.	Year.	Mean actual strength command.	Cases.	Rates per thousand.	Non-effective rates per thousand, hospital.
1906-7.....	440	682	1,550	35.22	1912-13.....	515	587	1,139	16.89
1907-8.....	404	641	1,586	32.17	1913-14.....	562	612	1,068	11.92
1908-9.....	422	992	2,350	32.77	1914-15.....	612	690	1,127	19.83
1909-10.....	417	987	2,366	35.73	1915-16.....	579	579	1,000	12.82
1910-11.....	407	780	1,916	28.25	1916-17.....	712	756	1,061	14.54
1911-12.....	531	764	1,438	17.70					

With few exceptions there were no cases of critical illness or serious injury under treatment during the year; one cadet in the fourth class developed pulmonary tuberculosis and was transferred for treatment to Fort Bayard, N. Mex., where he has since died; one new cadet reported at West Point with gangrenous appendicitis and died of complications following operation. There were two other deaths during the year, both cadets being on leave; one was drowned and the other died as the result of an operation for cerebral tumor.

Eight cadets were discharged for physical disability, three for defective vision, two for chronic aural defects, two for venereal disease and one for valvular disease of the heart. Two cadets were transferred to the Walter Reed General Hospital with dementia precox.

No new cases of malaria occurred during the year, and only one case was under treatment, a recurrent attack.

Of the 756 hospital admissions, 258 or 34.12 per cent were for diseases of the digestive system; 117 or 15.47 per cent were due to general diseases; and 112 or 14.71 per cent were on account of injuries and other affections due to external causes.

Football.—During the football season from September 1 to December 1, there were only 22 accidents requiring hospital treatment; none of these injuries was sufficiently serious to cause permanent disability

of any sort; the longest period of treatment of any case was 15 days. a sprain of the left knee which recovered entirely before the season was over. This is the smallest and least serious casualty list of which there is any record during the past ten years and is the direct result of careful supervision of the football squad during practice and in contests with other teams. Increasing experience with football at the academy leads to the conclusion that serious football injuries like most other injuries are preventable. The following table shows the number of football injuries during the past 10 years and the number of days lost by treatment in hospital:

Year.	Number of cases.	Days lost in hospital.	Average days per case.	Year.	Number of cases.	Days lost in hospital.	Average days per case.
1907.....	25	117	4.6	1912.....	35	259	7.4
1908.....	62	362	5.8	1913.....	28	157	5.6
1909.....	34	174	5.0	1914.....	36	221	6.1
1910.....	27	210	7.7	1915.....	25	159	6.3
1911.....	34	169	4.9	1916.....	22	106	4.8

Enlisted men.—During the past year there were 332 admissions to sick report, equivalent to an admission rate of 450 per thousand; the total number of days lost was 3,087, giving an average noneffective rate of 11.4 per thousand for the year. The following table shows the number of admissions, the admission rates and the noneffective rates per thousand among enlisted men for the past seven years:

	1911	1912	1913	1914	1915	1916	1917
Admission to sick report.....	622	401	415	302	359	231	332
Rates per thousand (admission).....	825	626	603	468	501	326	450
Noneffective rates.....	18.87	14.81	15.26	11.25	9.35	7.90	11.4
Mean annual strength of command.....	649	648	683	702	716	708	737

The number of admissions for transmissible diseases included influenza 28, venereal 25, german measles 5, mumps 4, malaria 2, and cerebrospinal meningitis 1.

Civilians.—The health of the civilian population has been satisfactory, no epidemic of any dangerous transmissible disease having occurred at West Point. During July, August, and September poliomyelitis in epidemic form appeared in Highland Falls, the origin of the first cases being traced to New York City and Brooklyn. In all 24 cases occurred in the village, with 5 deaths, the disease being about evenly divided between the families of civilians attached to this command and families of other residents of Highland Falls. Nearly every town in the vicinity of West Point was more or less infected from early in July to October, including Fort Montgomery, Cornwall, Newburgh, Peekskill, Garrison, Cold Spring, and Dishkill; the immunity of this garrison to the disease was due first to the exclusion from West Point of all children under 16 years of age; second, the restriction of travel to and from the post to persons having official business only, thus greatly reducing the amount of contact with infected areas and minimizing the danger from carriers;

and, third, the making of a thorough medical survey of the entire juvenile population of Highland Falls, so that practically every case of infantile paralysis was discovered and identified.

Sanitation.—Sanitary conditions were excellent throughout the year. The stringent measures heretofore adopted for combating fly and mosquito breeding were continued successfully. Only three cases of malaria occurred during the year, of which two were recurrences. This is the lowest malarial record of which there is any record at the academy. The admission rates for malaria for cadets and for enlisted men for the past 10 years are shown by the following table:

Year.	Cadets.	Enlisted men.	Year.	Cadets.	Enlisted men.
1908.....	19.0	69.4	1913.....	25.2	23.2
1909.....	126.3	72.2	1914.....	.....	5.6
1910.....	127.5	76.2	1915.....	11.4	8.3
1911.....	58.9	36.9	1916.....	8.6	4.2
1912.....	88.5	41.6	1917.....	1.4	2.7

Hospital buildings.—The greatest need of the medical department at West Point is a new hospital. The present cadet hospital was erected in 1875. Since this time views as to the treatment of the sick and in regard to hospital construction have been fairly revolutionized, and although this building has been enlarged and has received some minor alterations in a line with modern sanitary improvements, it is not adapted to the present needs of the service nor can it, in my opinion, be so reconstructed as to satisfy the demands of modern hospital treatment. It is inadequate in the following particulars:

(a) There are no facilities for the hospital treatment of officers nor of women and children. In a post of this size cases frequently occur in the families of officers and enlisted men where such facilities are essential for proper treatment. At present such cases must be sent to civilian hospitals or treated in private quarters.

(b) There are no small rooms for the treatment of patients requiring isolation or quiet, such as seriously ill medical cases or those recovering from the effect of grave surgical operations.

(c) The surgical operating department is wholly inadequate. There is no etherizing and no recovery room; no wash-up room for the operator and his assistants; no separate room for sterilization; and not sufficient space for minor operations and surgical dressings.

(d) The facilities for treating out-patients are inadequate and unsatisfactory; there is no waiting room; only a small extemporized closet for the examination of eye, ear, nose, and throat cases, and no room for the examination of women.

(e) There are no facilities for the open-air treatment of the sick. This is one of the most serious defects of the present building.

(f) There is no study or reading room for cadets. A room of this sort is essential, for many of the cadets are perfectly well able to keep up with their academic work while in hospital. At present they are obliged to study in the ward, which is prejudicial to the best interests of all.

(g) A separate building should be provided for housing and messing the hospital corps detachment. At present the squad rooms

are in the third story of the hospital and it is undesirable from every point of view to have them in such close proximity to the wards. This detachment has no reading or recreation rooms which are so essential for the efficiency and contentment of any organization.

Preliminary studies of a hospital building have been made in this office and submitted to the Surgeon General by whom they were approved and elaborated into sketch plans. The complete plant contemplates a hospital building of about 150 beds with wards and rooms in separate portions of the building for the treatment of officers and their families, for cadets and for enlisted men and their families; another building for female nurses and a third for enlisted men of the medical department. The estimated cost for the three buildings is \$450,000.

THE LIBRARY.

The character of the library of the United States Military Academy has long been established and remains essentially unchanged. It consists primarily of military works, including military history and the history of the art and science of war; a collection of general literature and history such as is indispensable for every institution giving education of a general character; a collection of public documents issued by the Federal Government and the governments of the several States and some municipalities; and special collections bearing on the studies which are characteristic of the course of instruction at the academy. During the year an endeavor has been made to keep each of these collections up to date. A special effort has been made to collect the current literature of the war now in progress, in which our nation has become engaged. Much if not most of what has been published on this war is of an ephemeral character, but it has been attempted to select from the mass of such publications those which will best represent or reflect in future times the contemporary attitude of the people of the various belligerent countries toward the great struggle. In addition to this works containing reliable information, which is the raw material of the history of the war which will be written in the distant future, have been acquired wherever possible.

The number of volumes in the library on July 1, 1916, was 98,323. On June 30, 1917, the catalogues show 100,997 books, an increase of 2,674 volumes during the year.

The collections of works relating to the history of the revolutionary armies and the regular and volunteer armies of the Civil War are a special feature of the library, and these collections have been materially added to during the year.

The thanks of all graduates of the academy are due to many donors of valuable and interesting gifts which have been received during the course of the year. Among those who have generously remembered the library are Sir Gilbert Parker, Bart.; Prof. W. Macneile Dixon; Col. W. H. Harts, C. E.; Col. J. B. Ballinger; Capt. C. B. Clark; Mrs. A. B. Shattuck; Mrs. A. P. Weimer; Mrs. Butler; Miss Margaretta L. Hazzard; Mr. Russell Thayer; Lieut. Col. E. W. Hubbard, retired; Mr. W. E. D. Stokes; Dr. A. H. Strong; Mr. J. D. Rockefeller, jr.; Mr. S. A. Wood, jr.; Mr. Samuel Insull; Mr. Bartow A. Ulrich; Messrs. Thomas Y. Crowell Co.; Messrs. E. P. Dutton & Co.; Messrs. Albert D. Smith & Co.; the library of the Historical

Society of Pennsylvania; the Woman's Peace Party; the Union-Cable Mail S. S. Co. (Ltd.); American Society of Mechanical Engineers; National Research Council; Wistar Institute of Anatomy and Biology; General Education Board; Yale University Press; National Highways Association; Michigan Historical Society; Lake Forest University; National Biscuit Co.; National Advisory Committee for Aeronautics.

No repairs have been effected to the library building during the year.

Under the methods followed in the library by which practically all of its volumes are open to readers it is not possible, nor desirable, to keep a record of the kind or extent of the reading done in the library by cadets and others who use it. A record of books taken from the library for reading outside is contained in the following table, an examination of which shows a small but gratifying decrease in the proportion of fiction read by cadets and a very considerable decrease in the volume of fiction and a perceptible diminution of the amount of nonfiction read by others than cadets who use the library.

Statistics of circulation.

Month.	Cadets.				Other than cadets.				Total volumes for month.	Aver age volu- mes per day.
	Fiction.		Nonfiction.		Fiction.		Nonfiction.			
	Number volumes.	Per cent.	Number volumes.	Per cent.	Number volumes.	Per cent.	Number volumes.	Per cent.		
1916.										
June.....	307	65	143	35	292	51	281	49	1,023	36
July.....	164	69	74	31	336	62	210	38	784	26
August.....	173	75	59	25	377	54	327	46	936	30
September.....	209	58	151	42	359	51	351	49	1,070	36
October.....	487	61	312	39	284	57	339	43	1,302	45
November.....	608	65	356	35	216	37	355	63	1,535	51
December.....	634	66	324	34	207	34	406	66	1,571	51
1917.										
January.....	762	62	459	38	396	36	514	64	2,081	65
February.....	566	69	388	31	268	42	372	58	1,594	57
March.....	637	59	448	41	284	38	453	62	1,822	59
April.....	391	55	307	44	231	46	276	54	1,206	40
May.....	286	52	265	45	189	31	418	69	1,158	37
Total.....	5,224	61	3,296	39	3,309	43	4,302	56	16,121	45
Total for same pe- riod, 1915-16.....	4,118	64	2,334	36	4,133	48	4,430	52	15,015	41

A rearrangement of some of the collections in the library has been effected by which works of a character which makes them valuable for educational purposes have been made more readily accessible to readers; a special room has been set aside for the law library; and the library space utilized to what is believed to be greater advantage and convenience of readers.

BOARD OF VISITORS.

The following named members of the House of Representatives made an official visit to the academy in the latter days of May. They inspected the general conditions of the post and academy and col-

lected information as to the necessity for the requests made to Congress:

Hon. J. Q. Tilson,
Hon. T. W. Harrison,
Hon. S. J. Nicholls,

Hon. C. P. Caldwell,
Hon. William Gordon,
Hon. J. H. Davidson.

With the exception of Mr. Davidson these gentlemen were accompanied by their wives. In addition to the above named the Hon. Edmund Platt was present part of the time.

ALUMNI.

For the first time since 1818 no graduating exercises took place at the academy in June this year. As a result of this departure many of the other usual exercises of this month were omitted, among the most important of which were the gatherings of the alumni of different classes.

The representatives of the class of 1865 were the only ones who came together here in June, but it is understood that the class of 1867 will adhere to its determination to maintain an unbroken record by coming together at the graduation of the class arranged for August 30. It is hoped that the conditions in June, 1918, will be such as to bring together a large number of the alumni of early and late years, whose advice and criticism are always welcome and will receive glad consideration.

S. E. TILLMAN,
Colonel, U. S. Army, Superintendent.

**REPORT OF THE CHICKAMAUGA AND CHATTANOOGA
NATIONAL MILITARY PARK COMMISSION.**

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REPORT OF THE CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK COMMISSION.

WAR DEPARTMENT,
CHICKAMAUGA AND CHATTANOOGA
NATIONAL PARK COMMISSION,
Chattanooga, Tenn., September 5, 1917.

SIR: The commissioners have the honor to submit their annual report for the fiscal year ended June 30, 1917.

PARK AREA.

The area of the park has not been increased during the year.

ROADS.

Owing to the use of Chickamauga Park as a camp site for Regular troops, and the heavy hauling incident to the construction of cantonments and other buildings, the roads in the western area and those leading to the town of Rossville, have suffered to a very great extent, in spite of the attempt to keep them up by placing fresh material on them. It is believed that the work now being done by the military authorities in restoring the roads should be pushed as rapidly as possible and that a sufficient allotment be made to insure a more permanent and durable type of road than heretofore used.

In the park system there are 102.14 miles of roadways. Of this total mileage 95.6 miles were improved during the fiscal year at a cost of \$26,478.13, an increase over last year of \$3,219.26. This increase in cost of maintenance is partly accounted for by the storms and washouts in the fall of 1916, which carried away the fills at the Alexander and Davis Bridges necessitating an unforeseen expenditure of \$2,044.40; and partly by the increased travel in Chickamauga Park and its approaches incident to the construction of cantonments and use for military purposes. The average cost of maintenance for the year was \$276.70 per mile.

Floods.—In addition to the floods which carried away the approaches to the Alexander and Davis Bridges in the Georgia division, a very disastrous rise in the Tennessee River during the month of March flooded the Government Hooker Road. This highway was under water for a distance of about 2 miles.

FIELD WORK.

The expenditure for field work during the year was \$4,185.02. The following table shows the expenditures upon the several reservations:

Georgia division:

Chickamauga Park (maintenance)-----	\$2,754.54	
Chickamauga Park (construction)-----	157.05	
		\$2,911.59

Tennessee division:

Bragg reservation (maintenance)-----	\$21. 50
Cravens reservation (maintenance)-----	\$310. 60
Cravens reservation (construction)-----	235. 56
DeLong reservation (maintenance)-----	546. 16
Ohio reservation (maintenance)-----	36. 75
Orchard Knob (maintenance)-----	3. 75
Seventy-third Pennsylvania reservation (maintenance)-----	275. 78
Point Park (maintenance)-----	11. 01
Sherman reservation (maintenance)-----	289. 97
	89. 13
	4, 185. 02

Field work was much curtailed this year on account of the scarcity of labor and teams and the occupation of the park by the military authorities.

MONUMENTS, TABLETS, TOWERS, ETC.

The monument erected by the State of Ohio in the Cravens' reservation, on the eastern slope of Lookout Mountain, was completed during the year, and it is understood that the dedication ceremonies will be held on October 17, 1917, the monument not having been completed last year, as contemplated, in time for the ceremonies during the reunion of the Army of the Cumberland. The commission expended \$235.56 in sodding and otherwise beautifying the ground about this monument.

The expenditure for the maintenance of monuments, tablets, towers, etc., was \$516.47, as shown in the following statement:

Monuments and markers, repairs-----	\$33. 07
Tablets, painting and repairs-----	215. 43
Gun carriages, painting-----	154. 60
Towers, repairs-----	23. 70
Signboards-----	89. 67
Total-----	516. 47

BUILDINGS.

The expenditures on buildings during the year amounted to \$800.77. This included the construction of an annex to the blacksmith shop and a small crusher house at park headquarters, costing \$166.24.

INCLOSURES AND FENCES.

During the year there was expended in the construction and maintenance of inclosures and fences \$425.56.

REVOCABLE LICENSES.

The following licenses were granted by the Secretary of War during the year:

Willson & Co. (Inc.):

Permission to build a roadway leading from its property into the Government Hooker Road, including the construction of a concrete culvert across the open drain or ditch running along said road; also to cross the said Hooker Road with a twenty-one (21") inch sewer pipe and to continue the extension of same along the northern edge of the said road in an easterly direction 1,500 feet. Dated November 4, 1916.

Chattanooga Railway & Light Co.:

Permission to erect forty-two (42) poles and operate its lines along the Government Hooker Road in Alton Park. Dated December 9, 1916.

City Water Co.:

Permission to maintain its water mains, with proper hydrants and supply connections for consumers, on and along the Government roads within the United States reservation of Chickamauga and Chattanooga National Park and on and along the approaches thereto, where the same are now located; to lay and maintain a ten (10'') inch water main on and along the Hooker Road for 837 feet from Jordan Street to Cedar Street in Alton Park; and to make such future extensions of its mains within the park as may be necessary under permits to be granted by the Chickamauga and Chattanooga National Park Commission. Dated August 4, 1916.

NOTE.—This license includes all concessions heretofore granted this company.

City Water Co.:

Permit under license of August 4, 1916, to extend a twelve (12'') inch water main on Government Hooker Road from Doak Street to Mountain Avenue, a distance of five hundred (500') feet. Dated August 5, 1916.

City Water Co.:

Permit under license of August 4, 1916, to extend ten (10'') inch water main on and along the Government Hooker Road in Alton Park from Cedar Street south 462 feet, thence east 1,125 feet. Dated October 9, 1916.

Chattanooga Gas Co.:

Permit under license of October 19, 1914, to extend gas main on and along the Government Hooker Road from the intersection of East End Avenue, in an easterly direction, for a distance of 1,000 feet. Dated November 20, 1916.

Chattanooga Gas Co.:

Permit under license of October 19, 1914, to extend a four (4'') inch gas main on and along the Government Crest Road on Missionary Ridge from the Birds Mill Road to a point near the Bragg Reservation, a distance of 3,400 feet. Dated April 27, 1917.

Central of Georgia Railway:

Permission to cross the Government (Dry Valley) road with a sidetrack running parallel to the main line of its railway at a point south of Rossville, Ga. Dated June 21, 1917.

RESERVE OFFICERS' TRAINING CAMP.

A reserve officers' training camp was opened on the park on May 8, and extended to August 15, 1917. Cantonments were erected in the north Snodgrass field and every provision made by the military authorities for the care and instruction of the students. The number of students enrolled was 2,619, of which number 143 were transferred to other camps. Of the remaining 2,476 students 1,713 were graduated. The camp was under the command of Col. Herbert J. Slocum, Thirteenth Cavalry.

CANTONMENTS.

Cantonments for Regular troops were constructed in Chickamauga Park, as follows:

Eleventh Infantry	North Dyer field.
Signal Corps	North Dyer field, west of Dyer house.
Fifty-first Infantry	South Dyer field.
Sixth Infantry	Brotherton field.
Fifty-fourth Infantry	Brotherton field.
Fifty-third Infantry	East Vinland field.
Seventeenth Infantry	East Vinland field.
Fifty-sixth Infantry	West Vinland field.
Fifty-fifth Infantry	West Vinland field.
Fifty-second Infantry	Glenn (or Wilder) field.

The Eleventh, Twenty-second, and Twenty-third Cavalry Regiments, medical officers' training camp, Field Hospital, and Ambu-

lance Corps were located in that part of the Chickamauga Park included in the Fort Oglethorpe reservation.

In addition to the cantonments, 12 or more Young Men's Christian Association buildings are being erected, including a large assembly hall, at the entrance to the park, and a civic center at the intersection of the Lafayette and Saw Mill Fork Roads, where the post office, express and railroad offices, etc., are located.

Water supply.—Water mains were extended throughout the western section of the park by the military authorities and connected with the city water system of Chattanooga. A large reservoir is also being constructed for fire protection on one of the outlying ridges of Snodgrass Hill. All wells in the vicinity of cantonments have been dismantled.

Sewerage, electric lights, and telephones.—The cantonments are being connected with a comprehensive sewerage system, and the installation of electric lights and telephone service is well underway.

Under the act of Congress approved July 1, 1916, making appropriations for the sundry civil expenses of the Government for the fiscal year ended June 30, 1917, and for other purposes, the sum of \$55,260 was appropriated for continuing the establishment of the Chickamauga and Chattanooga National Military Park.

The receipts and expenditures were as follows:

Receipts and expenditures for the fiscal year ending June 30, 1917.

RECEIPTS.

Balance July 1, 1916, no-year appropriation.....	\$8,742. 86	
Rent of land in Point Park.....	200. 00	
		<u>\$8,942. 86</u>

OUTSTANDING RESOURCES.

Rent of land in Cravens's reservation.....	6. 00	
		<u>8,948. 86</u>

EXPENDITURES.

(From balance of July 1, 1916, no-year appropriation.)

Maintenance:		
Roads and walks.....	\$2,307. 32	
Means of transportation.....	82. 51	
Equipment:		
Means of transportation.....	429. 50	
		<u>\$2,819. 33</u>

OUTSTANDING OBLIGATIONS.

Maintenance:		
Tools.....	. 60	
Balance available July 1, 1917, no-year appropriation....	6,128. 93	
		<u>8,948. 86</u>

RECEIPTS.

Balance July 1, 1916—1915 appropriation.....	158. 29	
Outstanding obligation transferred to no-year appropriation.....	. 60	
		<u>158. 89</u>

EXPENDITURES.

(From balance of July 1, 1916; 1915 appropriation.)

Surplus-fund warrant No. 75.....	158. 89	
		<u>158. 89</u>

RECEIPTS.

Appropriation for fiscal year 1917.....	\$55,260. 00	
		<u>\$55,260. 00</u>

CHICKAMAUGA AND CHATTANOOGA NAT. MIL. PARK COMMISSION. 989

EXPENDITURES.

Salaries of commissioners.....	\$10,800.00
Salary of assistant secretary.....	2,000.00
Salaries of superintendent and assistants.....	7,885.00
Construction:	
Buildings.....	90.84
Field work.....	392.61
Inclosures and fences.....	52.68
Monuments, tablets, towers, etc.....	86.17
Maintenance:	
Buildings.....	444.68
Heating.....	18.75
Holidays (Labor Day and Thanksgiving day).....	148.15
Office expense.....	48.06
Telegrams.....	2.22
Transportation of persons.....	20.00
Transportation of things.....	24.31
Water supply.....	44.88
Field work.....	8,611.98
Inclosures and fences.....	363.38
Machinery.....	129.10
Means of transportation.....	1,390.00
Monuments, tablets, towers, etc.....	350.20
Roads and walks.....	22,674.70
Tools.....	188.65
Equipment:	
Means of transportation.....	15.00
Tools.....	80.01
Unexpended stores on hand:	
Stationery.....	47.02
Miscellaneous stores.....	95.28
	\$50,996.65

OUTSTANDING OBLIGATIONS.

Construction:	
Buildings.....	75.40
Monuments, tablets, towers, etc.....	3.50
Maintenance:	
Buildings.....	189.85
Office expense.....	.75
Telegrams.....	.78
Water supply.....	17.25
Field work.....	180.43
Inclosures and fences.....	9.50
Machinery.....	9.72
Means of transportation.....	145.21
Monuments, tablets, towers, etc.....	76.60
Roads and walks.....	1,495.21
Tools.....	8.56
Equipment:	
Tools.....	66.65
Means of transportation.....	.50
Unexpended stores on hand:	
Miscellaneous stores.....	148.68
	2,428.59
Unexpended balance, appropriation fiscal year 1917.....	1,834.76
	55,280.00

RECAPITULATION.

Receipts:	
Balance July 1, 1916 (no-year appropriation).....	\$8,742.86
Rent of land in Point Park.....	200.00
Rent of land in Cravens Reservation.....	6.00
Balance July 1, 1916 (1915 appropriation).....	158.29
Outstanding obligation transferred to no-year ap- propriation.....	.60
Appropriation for fiscal year 1917.....	55,280.00
	\$64,387.75

990 CHICKAMAUGA AND CHATTANOOGA NAT. MIL. PARK COMMISSION.

Expenditures:

From no-year appropriation.....	\$2,819.98	
From appropriation, fiscal year 1915.....	158.89	
From appropriation, fiscal year 1917.....	53,425.24	
		\$56,404.06
Available balance July 1, 1917, no-year appropriation.....	6,128.98	
Unexpended balance July 1, 1917, 1917 appropriation.....	1,834.76	
		7,963.69
		64,367.75

Statement of condition of the park June 30, 1917.

Area:

Chickamauga Park.....	acres.....	5,562.78
Fort Oglethorpe Reservation.....	do.....	810.38
Lookout Mountain—		
Cravens Reservation.....	acres.....	85.35
Point Park.....	do.....	16.50
		101.85
Missionary Ridge—		
Sherman Reservation.....	do.....	50.00
DeLong Reservation.....	do.....	5.25
Ohio Reservation.....	do.....	1.50
Bragg Reservation.....	do.....	2.50
		59.25
Orchard Knob Reservation.....	acres.....	7.36
Total land purchased.....	do.....	6,541.62
Land donated for monument sites.....	do.....	1.87
Total area, exclusive of rights of way for road purposes.....	do.....	6,543.49
Average cost per acre for land purchased.....		\$48.15
Miles of finished and improved roadways.....		102
Bridges:		
Number.....		20
Cost.....		\$39,470.73
Number of guns mounted:		
Union.....		129
Confederate.....		116
		245
Number of cast-iron historical tablets.....		638
Number of cast-iron distance and locality tablets.....		300
Number of bronze historical tablets.....		61
Number of Army and corps headquarters shell monuments.....		14
Number of memorial shell monuments, brigade commanders killed:		
Union.....		5
Confederate.....		4
		9
Number of State monuments.....		232
Number of State markers.....		431
Number of observation towers:		
Iron (70 feet high).....		5
Stone (85 feet high).....		1
		6

Appropriation made by Congress, \$2,086,978.75.

All of which is respectfully submitted.

Jos. B. CUMMING,
Acting Chairman of Commission.

**REPORT OF THE GETTYSBURG NATIONAL
MILITARY PARK COMMISSION.**

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REPORT OF THE GETTYSBURG NATIONAL MILITARY PARK COMMISSION.

WAR DEPARTMENT,
GETTYSBURG NATIONAL MILITARY PARK COMMISSION,
Gettysburg, Pa., July 1, 1917.

To the SECRETARY OF WAR.

SIR: We submit the annual report for the fiscal year ended June 30, 1917.

OFFICERS AND EMPLOYEES.

Chairman and commissioner, Lieut. Col. John P. Nicholson; engineer, Lieut. Col. E. B. Cope; 2 assistant superintendents, 1 rodman, 1 messenger, 1 hostler, 4 guards, 4 carpenters, 1 carpenter's assistant, 4 painters, 6 concrete builders, 1 inspector, 9 pavers, 1 steam engineer and 1 helper, 5 laborers, 2 employees with horses and carts, 1 employee with 2 horses and wagon, and 1 temporary employee with horse and cart.

LAND.

Total land within the park area, reported June 30, 1916, 2,451.06 acres.

No land has been acquired since report of 1916.

CONTRACTS FOR PIKING AVENUES.

Contract No. 276 made with M. & T. E. Farrell for piking two sections of a macadam avenue on the East Cavalry Field. No. 309 made with M. & T. E. Farrell for piking a macadam avenue from West Confederate Avenue westerly to the Sharpshooters Monuments, Third Corps, in the Pitzer woods. No. 361 for making a macadam roadway, etc., around the Virginia memorial.

BIDS FOR LABOR, MATERIALS, ETC.

Equipment for flagpole, Nos. 287, 325.

Repairs to motor truck, Nos. 288, 307, 317, 324, 334.

Supplies for stable, Nos. 289, 297, 306, 315, 321, 329, 333, 339, 343, 344, 348.

Farm materials and supplies, Nos. 290, 294, 301, 302, 308, 314, 316, 319, 320, 322, 323, 326, 332, 341.

Paints, oils, and varnish, Nos. 303, 304, 313, 327, 328, 353.

Materials for repairing roads, etc., Nos. 299, 300, 310, 311, 318, 331, 340, 342, 345, 347, 350.

Repairing and painting towers, Nos. 291, 293.

Tools, Nos. 292, 298.

Maps, map rolls, and printing, Nos. 295, 296, 330.

Drugs, etc., Nos. 305, 312.

MONUMENTS AND TABLETS.

A bill was introduced and an appropriation made by the Legislature of Pennsylvania of \$5,000 for the use of the Gettysburg Battlefield Memorial Commission to transport the survivors of the commands and to dedicate the statues to Gens. Alexander Hays, A. A. Humphreys, and John W. Geary erected on the battlefield in 1915.

THE PENNSYLVANIA MEMORIAL.

Additional work has been done upon the memorial. A design was made by the engineer of the National Park Commission for a bronze door to replace the wooden door in the dome of the memorial. This has been finished by Bureau Bros., of Philadelphia, and placed in position.

THE VIRGINIA MEMORIAL.

The pedestal for this memorial was erected in 1913.

The bronze statue was mounted on the pedestal, and the bronze group of figures representing the Artillery, Infantry, and Cavalry of the Confederate Army was placed in position on the east base of the pedestal in December, 1916.

An appropriation was made by Congress in the deficiency bill, 1917, for \$925 to grade and pike a roadway around the memorial. Specifications and blue prints were made setting forth the work to be done and mailed to contractors. Bids were received and rejected; they were in the judgment of the commission excessive. Papers were again prepared and a contract was made and the contractor notified to go immediately to work. He completed the roadway June 2, 1917, which was in accordance with his agreement. The balance of the contract was completed on June 30.

CHAMBERLAIN AND HOWARD STATUES.

A resolution was introduced in the Legislature of the State of Maine, February 28, 1917, recommending an appropriation for statues to Gens. Joshua Chamberlain and O. O. Howard.

THE DEDICATION OF THE VIRGINIA MEMORIAL.

On the 10th of May, 1917, Col. Joseph Button was sent to Gettysburg by Gov. Stuart, of Virginia, to make arrangements for the dedication of the Virginia memorial, which was to take place on June 8 at 2 o'clock p. m. He employed Charles Kappes to take charge of the erection of a dedication platform, draping the pedestal and statues, etc.

The governor of Virginia and members of his staff accompanied by Gov. M. G. Brumbaugh, of Pennsylvania, arrived at 2.30 o'clock p. m. June 8, and proceeded with the dedication.

First. The meeting was called to order by Hon. Henry C. Stuart, governor of Virginia.

Second. Invocation by James Power Smith, D. D., formerly aid-de-camp to Gen. Jackson.

Third. Memorial unveiled by Miss Anne Carter Lee, granddaughter of Gen. Robert E. Lee.

Fourth. Salute.

Fifth. Presentation of memorial by Gov. Stuart.

Sixth. Acceptance, Hon. William M. Ingraham, Assistant Secretary of War.

Seventh. Oration, Leigh Robinson, of the Richmond Howitzers.

Eighth. Benediction, Right Rev. Robert A. Gibson, D. D., of the Rockbridge Artillery.

STATUES TO GENs. DOUBLEDAY AND ROBINSON.

An appropriation of \$9,000 having been made by the New York Legislature to be expended by the New York Monuments Commission to erect on the Gettysburg battlefield bronze statues to Maj. Gen. Abner Doubleday and Brig. Gen. John C. Robinson, members of the commission, visited the battlefield, consulted with the National Park Commissioners and, assisted by them, selected sites on the field.

The locations were approved by the Secretary of War July 6, 1916. The foundations were staked out by the engineer of this commission and the foundation walls have been completed. The sculptor J. Massey Rhind, has the statues well under way, and the dedication will take place in the autumn of 1917.

THE GREGG STATUE.

A bill was introduced at the present session of the Legislature of Pennsylvania by Hon. D. Calvin Rudisill, appropriating \$30,000 to be expended by the Pennsylvania Monuments Commission to erect an equestrian statue on East Cavalry Field to Bvt. Maj. Gen. David McM. Gregg.

AVENUES.

M. & T. E. Farrell, contractors, were given the contract to grade and pike two sections of an avenue on East Cavalry Field, a total length of 11,496 feet, 12 feet wide. They began the work on June 5 and it was completed November 14, 1916. The contract price was \$12,912. Culverts had been prepared, and a strip of land purchased from Wellington J. Swope for the purpose of widening a part of this avenue. Four additional guns will be mounted to increase the number of Confederate cannon on this avenue. The grounds on both sides of the avenue have been sown with grass seed.

The national flag is kept flying except in stormy weather on the Cavalry battle field and an employee of the commission is on duty 11 months in the year as caretaker.

THE SHARPSHOOTERS AVENUE.

This avenue was staked out June 23, 1916. Specifications were prepared and mailed to contractors and bids asked for to grade and pike it. The contract was awarded to M. & T. E. Farrell, they being the lowest bidders. The award was approved by the Assistant Secretary of War August 1, and the contract signed on August 4, 1916. The work was completed in December, 1916.

A culvert was built at the entrance of the avenue by the concrete builders of the commission, connecting the Sharpshooters Avenue with West Confederate Avenue. A tablet was placed at each side of the entrance, directing visitors to the monuments of Companies A, B, D, H, First United States Sharpshooters and Third Maine.

REPAIRING AVENUES.

Bids were received from Samuel Robinson to furnish limestone screenings; also to haul and spread them on the avenues and public roads that have been piked, and are maintained by the United States within the limits of the park. He has furnished during the fiscal year 2,000 tons; M. & T. E. Farrell furnished during the year 225 tons—a total of 2,225 tons.

CULVERTS, GUTTER PAVING, AND REPAIRS TO GUTTER PAVING.

Eleven small culverts and pipe walls have been built during the year, 2,450 feet of gutter paving have been completed and 1,000 feet repaired, 3 concrete walks have been made. 15 shell stones, and 11 guard stones have been erected.

GUN CARRIAGES.

Number of guns mounted on the field reported for the fiscal year of 1916, 410. No additional gun carriages have been ordered during the current year. The painters began repainting the carriages and guns in April, 1917.

FENCING.

The fencing material for the year was furnished by E. J. Naugle, upon his bid, and erected upon United States land for farm fences or for repairs to farm fences, by James A. Felix, under the direction of W. C. Storrick, in charge of the United States farms. About 7,490 feet of post and rail fence and 1,857 feet of wire fencing have been built.

All of the posts were treated with the creosote-oil preparation as in the preceding years.

FARM BUILDINGS.

Four carpenters are engaged principally in repairing the numerous houses, barns, and outbuildings upon the Government farms.

PAINTING.

Charles Kappes was given the contract on his bid to paint the five towers on the battlefield. This has been completed.

The painters employed by the commission have been at work during the year painting avenue fences, bridges, guard rails and shells, iron tablets, and all necessary painting at farm buildings, etc.

CLEANING BRONZE TABLETS.

Two artisans of the commission's force go over the entire battlefield of Gettysburg at least once a year cleaning the polished parts of all bronze tablets in charge of the commission.

MOWING.

The mowing commenced in the spring of 1916, was continued through the summer upon the sides of avenues, around the base of monuments, and on plats of United States land not leased. One man with horse lawn mower, one with side-cut mower, two men with

hand lawn mowers, and six with scythes to cut out long grass and weeds, and to cut out the growth along the sides of piked public roads (which are about 10 miles in length) were engaged at this work. The man employed as caretaker and guard on the Cavalry field mows the grass on the sides of the avenues and on the disconnected plats of Government grounds (on which are mounted regimental monuments) between the Cavalry field and the National Park.

CLEARING THE GROVES.

A force of artisans employed by the commission are almost constantly at work during the months on duty, cutting out the dead timber in the forests and groves of the park and clearing out weeds and other superfluous growths. The large cedars suitable for posts are cut and stored. All fallen trees are dismembered and the logs hauled to be sawed into lumber for the use of the carpenters.

SODDING.

Two parties are engaged in sodding, at the proper season of the year, at all the bare places caused by gutter paving, mounding monuments and markers, or where the grass has been burned out or has died from other causes and where necessary grading has been done. The sod can usually be taken from United States land and the uncovered ground plowed up, cultivated, and sown with grass seed.

WEST POINT CADETS.

It has been the yearly custom of the Military Academy at West Point to send the graduating class to the Gettysburg battlefield to make a two-days study of the positions and maneuvers on the field. Their first visit was in 1902, and they have missed but two years. The commission has no notice of a visit to be made this year.

UNITED STATES MARINE OFFICERS SCHOOL.

For several years a detail of the officers of the United States Marine School spent a few weeks on the battlefield, sketching and studying the topographical features of the field, etc.

It is probable that neither they, nor the class of cadets from the United States Military Academy will come owing to military preparations for war.

CAMP, UNITED STATES TROOPS, GETTYSBURG, PA.

On May 22 the War Department notified the chairman of this commission that recruiting stations for the United States Regular Army would be established as follows: For the Eastern Department, Fifth Increment, Fifty-eighth, Fifty-ninth, Sixtieth, and Sixty-first Infantry, in Gettysburg National Park.

Maj. Williams, United States Army, Quartermaster's Department, reported at this office on May 26 to consult with the chairman of the Gettysburg National Park Commission relating to suitable camping ground for two regiments of Infantry, viz: The Fourth and Seventh,

en route from Texas border. Camp ground was selected on United States, Codori farm, for the Fourth Infantry, and land belonging to Calvin Gilbert, of Gettysburg, was selected for the Seventh Infantry. The Fourth Regiment arrived at camp June 2 and the Seventh Regiment June 4. Other camp grounds have been secured by agreements with the tenants, partly on United States land and partly on private property. These grounds to be used for the recruits as they arrive to augment the encampment preparatory to reorganization.

United States land occupied by the encampment at the close of this report as follows:

On the Codori farm: South field east side of Emmitsburg Road, William Redding tenant, grass field containing 33 acres.

Fields between Emmitsburg Road and Hancock Avenue, William F. Redding, tenant; grass fields containing 25 acres.

Three-cornered field on the west side of Emmitsburg Road in the angle between that road and Round Top Railroad, grass field containing 16 acres.

On the Bryan farm: William F. Abell, tenant, field east of Emmitsburg Road and between that road and Hancock Avenue; a grass field containing 3 acres.

On the Smith farm: W. S. Shields, tenant, fields east of Emmitsburg Road containing 5 acres. Other United States land may be taken.

Other grounds within the limits of the National Park, but not on United States land, are occupied by a part of the encampment. This land will be shown on a map of the whole territory embraced.

CULTIVATING UNITED STATES LAND UNDER LEASE.

There are 19 farms on the battle field leased to tenants who cultivate their grounds under the direction of William C. Storrick, a practical farmer, who keeps them up to the best methods in order to raise the best crops. The acreage was the same as that of the preceding year.

A change of tenants was made at the following places:

McMillan and Barrett land, Slyder place, Althoff place, and the Weikert property.

LAND NOT UNDER LEASE.

About 25 acres of land consisting of two tracts, one located on East Cemetery Hill and the other on Oak Ridge, and not under lease, have been placed by the chairman under cultivation. This land was prepared for planting, divided into plots, and given to pupils of the Gettysburg schools for cultivation in view of the food shortage which now threatens the country.

These plots were planted in corn, potatoes, and other crops. The pupils are to receive all the crops raised and pay for the preparation of the land from the proceeds.

TREE REPORT.

The work of repairing damaged trees in the National Park which was begun last year was taken up again this year.

This work was carefully done and the best known and approved methods were used to preserve them. The cavities were thoroughly cleaned and treated with creosote and then filled with cement.

The edges of the cavities along the line of the cambium were covered with shellac and asphaltum. Weak and split trees were bolted to strengthen them.

The trees selected and treated are near the avenues and were taken on account of their historic value and in order to preserve the original conditions of the field.

Bronze statues on the field.

Name.	Description.	Sculptor.
Hancock.....	Equestrian statue.....	F. E. Elwell.
Meade.....	do.....	H. K. Bush-Brown.
Reynolds.....	do.....	Do.
Sedgwick.....	do.....	Do.
Slocum.....	do.....	C. E. Potter and French.
Buford.....	Standing figure.....	J. E. Kelly.
John Burns.....	do.....	Albert Bureau.
Greene.....	do.....	R. Hinton Perry.
Reynolds.....	do.....	J. Q. A. Ward.
Warren.....	do.....	Karl Gearhardt.
Webb.....	do.....	J. Massey Rhind.
Lincoln Pennsylvania memorial.....	do.....	J. Otto Schweizer.
Gregg Pennsylvania memorial.....	do.....	Do.
Pleasanton Pennsylvania memorial.....	do.....	Do.
Birney Pennsylvania memorial.....	do.....	Lee O. Lowrie.
Meade Pennsylvania memorial.....	do.....	Do.
Reynolds Pennsylvania memorial.....	do.....	Do.
Curtin Pennsylvania memorial.....	do.....	Clarke Noble.
Hancock Pennsylvania memorial.....	do.....	Cyrus E. Dallin.
Geary, Slocum Avenue.....	do.....	J. Otto Schweizer.
Hays, Hancock Avenue.....	do.....	Do.
Humphreys, Emmitsburg Road.....	do.....	Do.
Wells.....	do.....	Do.
Stannard.....	do.....	Karl Gearhardt.
New York State.....	do.....	Casper Bubert.
Pennsylvania memorial.....	do.....	Samuel Murray.
Wadsworth.....	do.....	R. Hinton Perry.
Vincent.....	do.....	S. J. O. Kelly.
Virginia memorial.....	Equestrian statue of Gen. Lee and bronze group.	F. Wm. Slevens.
First Minnesota Infantry.....	Standing figure.....	
Tenth Pennsylvania Reserve.....	do.....	
First Pennsylvania Cavalry.....	Kneeling figure.....	
Second Pennsylvania Cavalry.....	Standing figure.....	
Fifty-third Pennsylvania Infantry.....	do.....	
One hundred and fortieth Pennsylvania Infantry.....	do.....	
Fourth New York Independent Battery.....	do.....	Carl Burbel.
Lincoln.....	do.....	H. K. Bush-Brown.
Robinson.....	do.....	J. Massey Rhind.
Doubleday.....	do.....	Do.
Rev. Father Corby.....	do.....	Samuel Murray.

GRANITE STATUES.

One hundred and fortieth New York (Fourteenth Brooklyn).....	Standing figure.....	
One hundred and twenty-fourth New York.....	do.....	

Statement of the condition of the Gettysburg National Military Park at the close of the fiscal year ended June 30, 1917.

Infantry and Cavalry battle fields (Government owned and private owned).....	acres..	24, 460
Avenues and piked roads.....	miles..	34. 25
Earth roads.....	do.....	24. 00
Total miles.....		58. 25

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Avenue fencing.....	miles.....	15.00
Post fencing.....	do.....	35.16
Total miles.....		50.16
Bridges; steel, steel and granite, single and double arch. a total of.....		25
Towers (steel).....		5
Concrete culverts.....		10
Monuments erected by States and organizations.....		837
Statutes; bronze, equestrian.....		5
Statutes; bronze, standing on pedestals.....		26
Statutes; bronze, standing on monuments.....		27
Statues; granite, standing on monuments.....		21
Total.....		79
Bronze reliefs and tablets on monuments.....		172
Bronze reliefs and tablets not on monuments.....		755
Total.....		927
Iron tablets.....		439
Granite markers.....		321
Guns on carriages, caissons, limbers.....		417

LAND ACQUIRED FROM 1893 TO DATE.

Total acreage owned by the Government of the United States.....	2, 428.95
Ceded by Pennsylvania for paved roads.....	45.00
Total.....	2, 473.95

*Receipts and expenditures for the fiscal year ended June 30, 1917, from appropriations
Gettysburg National Military Park (no year).*

RECEIPTS.

Balance July 1, 1916.....	\$4, 937.54
Rents from tenants on United States farms.....	2, 016.00
Fines.....	47.50
Certificate of deposit No. 6093.....	5.00
Total.....	7, 006.04

EXPENDITURES.

Pay roll of artisans and laborers.....	\$1, 020.50
Pay of Ira N. Zeigler for December, 1916 and May, 1917.....	52.50
Lime for farm (United States land).....	222.00
Gun carriage and other repairs.....	130.31
Maintenance of avenues.....	2, 276.60
Printing, typewriting, stationery, etc.....	562.28
Millwork, hardware, and maintenance of truck.....	54.54
Maintenance of stable.....	121.56
Fencing material and lumber.....	575.00
Purchase of land.....	919.00
Treasury settlement 26755, stationery.....	\$2.01
Treasury settlement 27290, printing.....	73.86
Treasury settlement 27495, stationery.....	15.44
Treasury settlement 28268, printing.....	13.65
	104.96
	6, 039.23
Balance July 1, 1917.....	966.81

GETTYSBURG NATIONAL MILITARY PARK COMMISSION. 1001

GETTYSBURG NATIONAL PARK, 1916.

Balance July 1, 1916..... \$8,090.91

OUTSTANDING OBLIGATIONS.

Pay rolls for June, 1915.....	\$2,838.00
Piking and maintaining avenues.....	3,345.75
Ironwork, hardware, lumber, tools, repairs, etc.....	282.21
United States farm repairs, stable supplies, fencing, etc.....	479.52
Stationery, typewriting, office supplies, etc.....	438.65
Fertilizers, sand, lime, etc.....	270.26
Paints, oils, transportation, etc.....	138.14
Miscellaneous items.....	129.39
Treasury settlements.....	164.03
	8,085.95

Balance July 1, 1917..... 4.96

Receipts and expenditures for the fiscal year ended June 30, 1917, Gettysburg National Park.

RECEIPTS.

Appropriation, July 1, 1916.....	\$42,500.00
Appropriation, act of Apr. 17, 1917, general deficiency bill (roadway).....	927.00
Appropriation, act of May 12, 1917, Army bill (land).....	30,000.00
Total.....	73,427.00

EXPENDITURES.

SALARIES AND WAGES.

Commissioners, engineers, guards, artisans, and laborers.....	\$26,856.57
Purchase of land (obligated).....	30,000.00
Piking avenues, 16 to 20 cents per cubic foot, and maintenance..	12,212.93
Equipment, material, and supplies.....	1,575.97
Repairs.....	408.37
Stenography and typewriting.....	490.40
Stationery, printing, and office supplies.....	193.08
Transportation.....	181.31
Miscellaneous items.....	339.55
	72,358.18

Balance, June 30, 1917..... 1,068.82

OUTSTANDING OBLIGATIONS.

Pay rolls, June, 1917.....	1,037.50
Miscellaneous items.....	31.32
Total.....	1,068.82

Unobligated balance, None.

Names of the avenues in the Gettysburg National Military Park.

- | | | |
|--------------------------|------------------------|-----------------------|
| 1. Ayres. | 16. Gregg. | 31. Seminary. |
| 2. Birney. | 17. Hancock. | 32. Sickles. |
| 3. Brooks. | 18. Howard. | 33. Slocum. |
| 4. Buford. | 19. Howe. | 34. Stone. |
| 5. Carman. | 20. Humphreys. | 35. Sykes. |
| 6. Chamberlain. | 21. Hunt. | 36. United States. |
| 7. Confederate Cavalry. | 22. McGilvery. | 37. Warren. |
| 8. Confederate, sections | 23. Meade. | 38. Wainwright. |
| 4, 5, 6, 7. | 24. Meredith. | 39. Wadsworth. |
| 9. Coster. | 25. Neill. | 40. Webb. |
| 10. Colgrove. | 26. North Confederate. | 41. West Confederate. |
| 11. Crawford. | 27. Pleasanton. | 42. Wheatfield Road. |
| 12. Custer. | 28. Reynolds. | 43. Williams. |
| 13. Doubleday. | 29. Robinson. | 44. Wright. |
| 14. East Confederate. | 30. Sedgwick. | 45. Sharpshooters. |
| 15. Geary. | | |

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List of regiments of Infantry, Cavalry, and batteries of Artillery from each State in the Battle of Gettysburg.

UNION ARMY.

	Infantry.	Cavalry.	Artillery.
Connecticut.....	5	0	3
Delaware.....	2	0	0
Illinois.....	1	2	0
Indiana.....	5	1	0
Maine.....	10	1	3
Maryland.....	3	1	1
Massachusetts.....	15	1	4
Michigan.....	7	4	1
Minnesota.....	1	0	0
New Hampshire.....	3	0	1
New Jersey.....	12	1	2
New York.....	67	7	15
Ohio.....	13	1	4
Pennsylvania.....	68	0	5
Rhode Island.....	1	0	5
Vermont.....	10	1	0
Wisconsin.....	6	0	0
West Virginia.....	1	11	1
United States Regulars.....	11	4	25
United States Sharpshooters.....	2	0	0
Total.....	246	34	66

¹ And a squadron.

Respectfully submitted.

JOHN P. NICHOLSON,
Chairman.

**REPORT OF THE SHILOH NATIONAL
MILITARY PARK COMMISSION.**

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REPORT OF THE SHILOH NATIONAL MILITARY PARK COMMISSION.

WAR DEPARTMENT,
SHILOH NATIONAL MILITARY PARK,
Pittsburg Landing, Tenn., August 1, 1917.

SIR: Report of the condition of this park and a full account of the administration of its affairs covering the fiscal year ended June 30, 1917, are herein submitted.

AREA.

No land has been purchased within the year, and the area stands at 3,546.14 acres.

Under approval of the department, a 1-acre tract, known as Union school property, near the center of the park, will be purchased within the current year, money for the purchase having been appropriated.

ROADS.

The total of all roads graded and graveled is 27.52 miles.

Within the year the driveway around the Illinois State Monument was finished and granite wheel guards placed at the two entrances, thus affording an attractive approach to one of the most prominent monuments of the park.

The former unsightly public hitching rack which bordered on the main Corinth Road near the Iowa Monument has been moved back from the road a short distance and given a graveled approach on which horses and vehicles are not permitted to stand.

New work completed and all repairs, improvements, and protective work on and along the roads of the park are reported as follows:

Graded and graveled new	miles	0.17
Recrowned with gravel, reshaped, and rolled	miles	5.38
Aggregate of breaks and washes refilled and graveled	feet	8,367
Built new drainage gutters of stone and concrete	do	523
Gravel walks	do	270
Gutters repaired	do	94
Concrete walks	do	200
Retaining walls of stone and concrete	do	1,136
Protective tree walls	do	271
Erected granite wheel guards	do	4
Built new conduits	do	4

In addition to these specified improvements, all trunk roads of the park were reshaped and rolled.

The purchase of a modern steam roller, for which provision has been made, will add a long-needed facility for the proper care of roads already built, and for their extension, as may be required in the continual improvement of the park.

FOREST AND FIELDS.

About 200 dead trees and more than 1,100 dead saplings were removed from the reservation during the year, which, with the extended work of cutting away dead and false-growth limbs, has given a very pleasing appearance to the forest and a wider view of monuments and battle-line markers from the roads.

In covering bare spots around monuments and along roads and gutters 5,526 square feet of Bermuda sod have been placed.

BUILDINGS AND QUARTERS.

All public buildings are in good condition, and substantial improvements have been made for the convenience and comfort of visitors. The insanitary open closets installed some years ago in the rear of the pavilion for public use, having become very objectionable and inadequate to the uses of the constantly increasing numbers of visitors, were discontinued and razed, and two modern, automatic siphon closets, with complete water systems and sewer connections to the river, have been installed.

A commodious stage has been placed in the pavilion, completing it as an ideal place for public ceremonies.

Under a plan approved by the department, one of the telephone systems touching the park has extended its lines and service to all residence properties occupied by employees of the park, without expense to the Government, affording a great convenience to the people and facilitating the work of this office in caring for the various properties of the reservation and in preserving order.

The Poindexter house and outhouses, no longer fit for use and having no historic value, were razed during the year, and the old material is being built into a comfortable small cottage for the use of an employee.

TRANSPORTATION.

The Illinois Central, the Southern, and the Mobile & Ohio Railroad lines touch Corinth, Miss., from which point automobiles reach the park over a most excellent pike in about one hour.

Excursion boats of the St. Louis & Tennessee River Packet Co. make weekly trips to the park during the summer and autumn months, bringing crowds of interested people to the battle field. Many of these excursion parties are made up in Chicago and St. Louis and in the more distant cities and towns of the Northwest, coming by rail to St. Louis and thence by boat.

All boats remain for several hours, giving visitors time to see the battle field. Hacks and automobiles are available for their accommodation.

The boat company and the Mobile & Ohio Railroad Co. have issued for wide distribution attractive illustrated folders, based upon information furnished by this office, presenting interesting features of the park.

BATTLE LINES.

Tablets on the battle field are as follows:

Battle-line tablets.....	399
Camp-site tablets.....	83
Historical tablets.....	24
Headquarters tablets.....	12
Mortuary tablets.....	5
General explanatory, hospital, and road signs.....	298
Total.....	821

BATTERY MARKERS.

The most important positions of the artillery of the two armies are marked by cannon of the types used in the Battle of Shiloh, requiring 250 guns.

MONUMENTS.

The 138 monuments in the park are classified as follows:

Union:	
Illinois, 1 State, 39 regimental.....	40
Indiana, 22 regimental.....	22
Iowa, 1 State, 11 regimental.....	12
Minnesota, 1 regimental.....	1
Ohio, 34 regimental.....	34
Pennsylvania, 1 regimental.....	1
Wisconsin, 1 State, 1 individual.....	2
United States Regular troops, 3 regimental.....	3
Confederate:	
General memorial.....	1
Alabama, 1 State.....	1
Arkansas, 1 State.....	1
Louisiana, 1 regimental.....	1
Tennessee, 1 regimental.....	1
Mortuary.....	5
Headquarters.....	18
Total.....	138

Of these monuments, the general Confederate memorial was erected during the year by the United Daughters of the Confederacy at a cost of \$50,000.

Excavation for the foundation was begun on June 21, 1916. On November 4, 1916, the cornerstone was laid, and on May 17, 1917, the monument having been completed according to plans approved by the department, was formally presented to the Government and officially accepted by this office.

The appropriate and patriotic ceremonies attending the unveiling and presentation were witnessed by 15,000 visitors.

PROSPECTIVE MONUMENT.

The Legislature of the State of Michigan has appropriated the sum of \$4,500 for the purpose of erecting on this park a memorial to the Michigan soldiers of the Union who fought in the Battle of Shiloh, and a communication has been addressed to the members of the commission appointed by the governor of Michigan for the pur-

pose of erecting said monument, assuring them of the desire of this office to cooperate with them in their work.

HISTORY OF THE BATTLE.

During the year 56 copies of "The Battle of Shiloh and Organizations Engaged" were sold, and 134 copies distributed free to the survivors of the battle, their widows and descendants.

DECEASED COMMISSIONERS.

Two commissioners of the park died during the year—Gen. Basil W. Duke on September 16, 1916, and Maj. D. W. Reed, chairman of the commission, on September 22, 1916.

ACCOUNTS.

CASH COLLECTIONS.

Rents, privileges, sales of histories, fines, and stock-impounding charges.....	\$656. 78
Remitted to the Treasurer of the United States.....	656. 78

RECEIPTS AND EXPENDITURES.

Available balance July 1, 1916, "no year" appropriation.....	\$56. 85
--	----------

EXPENDITURES.

Passenger-carrying vehicles	\$55. 78
Gasoline	1. 07
Total.....	\$56. 85
Balance available July 1, 1917, "no year" appropriation.....	None.

RECEIPTS.

Appropriation for fiscal year 1917.....	\$25, 800. 00
---	---------------

EXPENDITURES.

Salaries of commissioners and secretary and superintendent	\$7, 316. 66
Salaries of clerk and range rider.....	1, 860. 00
	\$9, 176. 66
Equipment, materials, and supplies:	
Lime and cement.....	699. 22
Hardware, fencing, etc.....	588. 70
Lumber.....	550. 93
Paints and brushes.....	495. 38
Forage.....	415. 27
Closet systems.....	224. 20
Kerosene, crude oil, and disinfectants.....	169. 14
Brick.....	138. 00
Gasoline engines.....	85. 00
Sawing lumber.....	70. 19
Iron piping.....	54. 16
Sewer pipe.....	44. 35
Fence posts.....	39. 29
Gravel.....	30. 00
Gasoline.....	16. 38
Pump fixtures.....	14. 70
Lawn mower.....	8. 64

Equipment, materials, and supplies—Continued.

Window shades	\$7. 45
Shrubby	5. 40
Bicycle tires	3. 77
Wall paper	3. 70
	\$3, 663. 87

Labor:

Forests and fields	4, 822. 70
Roads and bridges	3, 278. 64
Buildings and quarters	1, 625. 32
Janitor	540. 00
Hostler	373. 67
Tablets and markers	298. 70
Monuments	275. 38
Special guards	253. 13
Gun carriages	126. 30
Blacksmithing	21. 63
Office	4. 50
	11, 619. 97

Passenger-carrying vehicles: Maintenance, operation, and repairs

791. 82

Stationery and office supplies:

Dictating machines	110. 50
Flags	43. 40
Printing office stationery	26. 26
Printing annual reports	24. 80
Ledger for general accounts	15. 21
Office clock	14. 40
Time books, ink, etc	4. 52
Picture frames	4. 15
	243. 24

Traveling

93. 40

Telephone service

54. 00

Miscellaneous:

Feed and care of impounded stock	64. 15
Tollgate fees	53. 10
Ice	25. 95
Towing broken-down car	8. 00
Hire of gasoline boat	3. 00
Department telegrams	. 84
Medicine and treatment of horse	2. 00
	157. 04

Total 25, 800. 00

Balance None.

RECAPITULATION.

Receipts:

Balance July 1, 1916, "no year" appropriation	\$56. 85
Appropriation for fiscal year 1917	25, 800. 00
Total receipts	25, 856. 85

Expenditures:

From "no year" appropriation	\$56. 85
From appropriation fiscal year 1917	25, 800. 00

Total expenditures 25, 856. 85

Balance available July 1, 1917 None.

Statement showing the condition of the Shiloh National Military Park at the close of fiscal year ended June 30, 1917.

Park area	acres	3, 546. 14
Roads graded and graveled	miles	27. 52
Buildings: Office, pavilion, store and post office, landing warehouse, stock and storage barns, carpenter and blacksmith shops, and magazine (9); residence properties (27)		36

Battle-line tablets:

Union.....	226	
Confederate.....	173	
		399
General explanatory, hospital, and road signs.....	298	
Camp.....	83	
Historical.....	24	
Headquarters.....	12	
Mortuary.....	5	
		422
Grand total of all tablets and markers.....	821	

Monuments:

Union.....	115
Confederate.....	5
Mortuary.....	5
Headquarters.....	13

Grand total of all monuments.....	138
Mounted cannon.....	250

Respectfully submitted.

DE LONG RICE,
Secretary and Superintendent.

Approved, J. H. ASHCRAFT,
Commissioner.

The SECRETARY OF WAR.

**REPORT OF THE VICKSBURG NATIONAL
MILITARY PARK COMMISSION.**

1011

REPORT OF THE VICKSBURG NATIONAL MILITARY PARK COMMISSION.

WAR DEPARTMENT,
VICKSBURG NATIONAL MILITARY PARK COMMISSION,
Vicksburg, Miss., July 10, 1917.

SIR: The commission has the honor to submit its report for the fiscal year ended June 30, 1917.

PARK AREA.

Includes 1,322.63 acres; cost per acre, \$47.35. Expenditure by United States under this head from the first, \$66,511.53 (includes cost of conveyancing).

CARE OF PARK AREA.

Expenditure by United States under this head, formerly clearing land: During year, \$6,467.34; from the first, \$77,688.48.

ROADS AND BRIDGES.

Length of roadway, including bridges, 31.86 miles; cost per mile, exclusive of bridges, \$12,923.05; cost of the 16 bridges, \$116,449. Expenditure by United States under this head: During year, \$7,086.89 (maintenance); from the first, \$585,748.47.

TABLETS AND GUIDEBOARDS.

Exclusive of 122 iron guideboards, 898 tablets are in place (897 by United States, 1 gift), 569 Union and 329 Confederate (31 bronze, 867 iron)—163 historical, 197 battery, 227 Union trench marker, 151 Confederate trench marker, 136 Union approach marker, 19 headquarters, and 5 mortuary. Expenditure by United States under this head: During year, \$298.28 (painting); from the first, \$21,497.91.

CANNON AND GUN CARRIAGES.

Number of guns mounted, 128 (114 field, 14 siege)—66 Union, 62 Confederate. Expenditure by United States under this head: During year, \$106.85; from the first, \$20,513.65.

OBSERVATION TOWERS.

Expenditure by United States under this head: During year, \$140.11 (repairs); from the first, \$27,890.01.

MEMORIALS, MONUMENTS, AND MARKERS.

At the cost of the park appropriations, the commission ordered one bronze portrait statue with granite pedestal (Lieut. Gen. J. C. Pemberton, Confederate States Army), at a cost of \$3,080 (1917 appropriation); one bronze portrait tablet with granite pedestal (Col. T. J. Lucas, Sixteenth Indiana Infantry), at a cost of \$541.20 (1917 appropriation, \$520; no year appropriation, \$21.20); and one portrait tablet pedestal (Confederate), at a cost of \$222 (no year appropriation). Two bronze portrait busts with granite pedestals are under contract as gifts. Two bronze portrait tablets were placed as gifts (pedestal in each case at the cost of the no-year appropriation): Lieut. Col. Melancthon Smith, Forty-fifth Illinois Infantry, given by his widow and his comrades; Maj. Alexander Yates, Thirty-sixth Mississippi Infantry, given by his nephew, Mr. Alexander Yates. Michigan's work in the park (State memorial and one monument) was dedicated and transferred to the United States November 10, 1916, and, by direction of the department, was accepted by the chairman. A granite base was placed under the Louisiana monument to the State's organizations in Johnston's army as a gift and at a cost of \$120. The Illinois Statue Commission contracted for bronze portraits with granite pedestals as follows: Equestrian statues, each, of Gens. Grant and McClelland; statue of Gen. Logan; and busts, each, of Gens. McArthur and J. E. Smith. The State Legislature appropriated an additional \$25,000 for the work of this commission. The Missouri commission is planning to dedicate its work (Union-Confederate State memorial, 16 monuments, 34 markers) during the reunion of veterans to be held here October 16-19, 1917. The New York commission expects to dedicate the State's memorial during this time. The Ralph P. Buckland association of veterans proposes to dedicate the general's portrait bust (its gift to the park) during the same period. It is greatly desired that the Union naval memorial be dedicated during the time of this reunion, preferably on Thursday, the 18th; that the program for the dedicatory ceremonies and exercises be prepared by the Secretary of the Navy and be carried out under his personal direction, and that the President of the United States and the Secretary of War be present and take part in the dedication. Number of memorials, monuments, and markers in place, under contract or ordered, 655. By United States, 1 Union naval memorial with 4 bronze portrait statues, at a cost of \$144,041; 2 bronze portrait statues (1 Union, 1 Confederate), at a cost of \$5,623; 49 bronze portrait busts (23 Union, 26 Confederate), at a cost of \$43,363.30; 55 bronze portrait tablets (42 Union, 13 Confederate), at a cost of \$23,638.25; and 3 markers (2 Union-Confederate, 1 Union), at a cost of \$400. Total by United States, 110 (68 Union, 2 Union-Confederate, 40 Confederate), at a cost of \$217,065.55. By States, 12 memorials (10 Union, 1 Union-Confederate, 1 Confederate), 8 Union bronze portraits (Illinois 5, Wisconsin 3), 202 monuments (171 Union, 31 Confederate), and 261 markers (251 Union, 10 Confederate). Total by States, 483 (440 Union, 1 Union-Confederate, 42 Confederate). Gifts, 34 bronze portraits (19 Union, 15 Confederate), 4 statues, 5 busts, 25 tablets; 22 monuments (2 Union, 20 Confederate), and 6 markers (5 Union, 1 Confederate). Total

gifts, 62 (26 Union, 36 Confederate), at a cost of \$72,728.30. Aggregate, 655 (534 Union, 3 Union-Confederate, 118 Confederate): 13 memorials (12 State, 1 Union naval); 148 memorial bronze portraits with granite pedestals (exclusive of 4 statues at the Union naval memorial and 5 tablets on front of the Pennsylvania State memorial); 2 equestrian statues (Union), 7 statues (5 Union, 2 Confederate), 56 busts (29 Union, 27 Confederate), and 83 tablets (57 Union, 26 Confederate); 224 monuments (173 Union, 51 Confederate); and 270 markers (257 Union, 2 Union-Confederate, 11 Confederate). Expenditure by United States under this head during year \$5,184.45; from the first, \$262,918.43. Exclusive of the 4 statues at the Union naval memorial that were included in its cost, expenditure by United States (made and obligated) for bronze portraits and granite pedestals from the first, \$73,881.55 (2 statues and pedestals, 49 busts and pedestals, 55 tablets and pedestals, 2 tablet pedestals, 30 bases for tablet pedestals, at \$850).

APPROPRIATIONS MADE FROM THE FIRST.

By United States, \$1,454,200. By States and for the purposes stated, as follows: Illinois, 78 organizations, \$310,000; State memorial, 2 equestrian statues, 1 statue, 2 busts, 78 monuments, and 85 markers. Indiana, 28 organizations, \$38,000; 16 monuments, and 53 markers. Iowa, 32 organizations, \$150,000; State memorial, 13 monuments, and 59 markers. Massachusetts, 3 organizations, \$5,000; State memorial. Michigan, 9 organizations, \$20,000; State memorial and 1 monument. Minnesota, 4 organizations, \$25,500; State memorial, 3 monuments, and 3 markers. Mississippi, 41 organizations, \$50,931; State memorial and 23 monuments. Missouri, 42 organizations (27 Union, 15 Confederate), \$50,000; State memorial (Union-Confederate), 16 monuments, 8 Union and 8 Confederate, and 34 markers (24 Union and 10 Confederate; (3 monuments and 4 markers as gifts). New Hampshire, 3 organizations, \$5,000; State memorial. New York, 4 organizations, \$12,500; State memorial. Ohio, 39 organizations, \$56,000; 39 monuments and 20 markers (1 marker as a gift). Pennsylvania, 5 organizations, \$15,000; State memorial with 5 medallion portrait tablets on its front. Rhode Island, 1 organization, \$5,000; State memorial. And Wisconsin, 17 organizations, \$130,000; State memorial, 3 portrait tablets, 13 monuments, and 7 markers (1 marker and 1 tablet as gifts). Total: States, 14; organizations, 306 (250 Union, 56 Confederate); appropriations, \$872,931; 12 memorials (10 Union, 1 Union-Confederate, 1 Confederate), 8 memorial bronze portraits (Union), 202 monuments (171 Union, 31 Confederate), and 261 markers (251 Union, 10 Confederate). Maryland and Virginia were each represented on this battlefield by one Confederate battery, and their monuments have been placed as a gift in each case.

APPROPRIATIONS DESIRED.

By United States, for a Confederate naval memorial on the approved site and at a cost not to exceed \$150,000. By States and for the purposes stated, as follows: Alabama, 19 organizations, State memorial, and 3 monuments. Arkansas, 15 organizations, State memorial, 4 monuments, and 1 marker. Florida, 3 organizations,

State memorial. Georgia, 21 organizations, State memorial, and 3 monuments. Indiana, 28 organizations, State memorial. Kansas, 1 organization, State memorial. Kentucky, 12 organizations (4 Union, 8 Confederate), State memorial (Union-Confederate), 2 monuments (1 Union, 1 Confederate), and 5 markers (Union). Louisiana, 41 organizations, State memorial (all monuments and 7 portrait tablets in place as gifts). North Carolina, 3 organizations, State memorial. Ohio, 39 organizations, State memorial and statues of Gens. McPherson and Sherman. Pennsylvania, 5 organizations, statue of Gen. Parke. South Carolina, 12 organizations, State memorial. Tennessee, 29 organizations, State memorial, and 1 monument (3 monuments in place as gifts). Texas, 15 organizations, State memorial, and 2 monuments (1 monument in place as a gift). Virginia, 1 organization, equestrian statue of Gen. J. E. Johnston. And West Virginia, 1 organization, State memorial, and 4 markers.

Receipts and expenditures were as follows:

Receipts:

Balance July 1, 1916, no year appropriation-----	<u>\$4, 902. 71</u>
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Expenditures:

From balance July 1, 1916, no year appropriation—	
For Maj. Alexander Yates pedestal-----	222. 00
For part payment on Col. Lucas pedestal-----	21. 20
For 1,000 hedge plants-----	30. 20
For payment on account of exchange of typewriter-----	36. 00
	<u>309. 40</u>
Total expenditures from no year appropriation-----	<u>309. 40</u>

Outstanding obligations—

Payment to be made on Gen. Forney statue-----	1, 000. 00
Possible retaining wall, as per W. D. 18057/24-----	520. 00

Total outstanding obligations, no year appropriation----	<u>1, 520. 00</u>
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Balance available July 1, 1917, no year appropriation--	3, 073. 31
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Receipts:

Balance July 1, 1916, 1915 appropriation-----	<u>720. 00</u>
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Expenditures:

From balance July 1, 1916, 1915 appropriation—	
For one bronze portrait tablet, as per contract-----	180. 00
Balance of appropriation, to surplus fund by law-----	540. 00
	<u>720. 00</u>
Total expenditures from 1915 appropriation-----	<u>720. 00</u>

Balance available July 1, 1917, 1915 appropriation---	None.
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Receipts:

Balance July 1, 1916, 1916 appropriation-----	<u>5, 956. 43</u>
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Expenditures:

From balance July 1, 1916, 1916 appropriation—	
For June, 1916, pay rolls and accounts-----	2, 643. 80
For road gravel, Treasury settlement No. 119011-----	639. 63
For bronze portraits, as per contracts-----	1, 941. 00
	<u>5, 224. 43</u>
Total expenditures from 1916 appropriation-----	<u>5, 224. 43</u>

Outstanding obligations, 1916 appropriation—

For four bronze portrait tablets, as per contract-----	732. 00
Balance available July 1, 1917, 1916 appropriation-----	None.

Receipts:

Appropriation for fiscal year 1917-----	<u>33, 000. 00</u>
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Expenditures:

From appropriation for fiscal year 1917—	
Salaries of commissioners.....	\$9,900.00
Salary of engineer and clerk.....	2,200.00
Pay of artisans, foremen, laborers, and teams.....	12,359.27
For office supplies and expenses.....	182.19
For cement, sand, and gravel.....	1,360.66
For lumber, hardware, paint, tools, and repairs.....	923.37
For memorial bronze portraits and granite pedestals.....	800.00
Total expenditures from 1917 appropriation.....	27,725.49

Outstanding obligations—

June, 1917, pay rolls and accounts.....	2,406.35
For 2 wall tents and flies and 6 storm flags.....	68.16
For bronze portrait statue (Gen. Pemberton), as per order.....	2,800.00

Total outstanding obligations, 1917 appropriation..... 5,274.51

Balance available July 1, 1917, 1917 appropriation..... None.

RECAPITULATION.
Receipts:

Balance July 1, 1916, no year appropriation.....	4,902.71
Balance July 1, 1916, 1915 appropriation.....	720.00
Balance July 1, 1916, 1916 appropriation.....	5,956.43
Appropriation for fiscal year 1917.....	33,000.00
Total receipts.....	44,579.14

Expenditures, made and obligated:

From balance July 1, 1916, no year appropriation.....	309.40
From balance July 1, 1916, 1915 appropriation.....	720.00
From balance July 1, 1916, 1916 appropriation.....	5,956.43
From appropriation, fiscal year 1917.....	33,000.00
Total expenditures.....	39,985.83

Available balance July 1, 1917, no year appropriation.....	3,073.31
Available balance July 1, 1917, 1915 appropriation.....	None.
Available balance July 1, 1917, 1916 appropriation.....	None.
Available balance July 1, 1917, 1917 appropriation.....	None.

Total available balance July 1, 1917..... 3,073.31

Estimates for fiscal year ending June 30, 1919.

For continuing the establishment of the park.....	\$32,000.00
For the construction of a Confederate naval memorial to cost not to exceed \$150,000, at the approved site and in accordance with designs to be approved by the Secretary of War.....	50,000.00

STATEMENT OF THE CONDITION OF THE PARK JUNE 30, 1917.

Area, 1,322.63 acres.
Miles of roadway including 16 bridges, 31.86.
Number of guns mounted, 128—114 field, 14 siege.
Number of tablets in place, 898—31 bronze, 867 iron.
Number of iron guideboards in place, 122.
Number of memorials in place, 13—12 State, 1 Union naval.
Number of memorial portraits in place, under contract, or ordered, 157.
Total of appropriations by United States, \$1,454,200.
Total of appropriations by States (14), \$872,931.
Number of States from each of which an appropriation is desired, 16.
Aggregate cost of gifts to the park, \$72,728.30.

WM. T. RIGBY,
Chairman of Commission.

The SECRETARY OF WAR.

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